# DEPARTMENT OF COMMERCE
# NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
## Budget Estimates, Fiscal Year 2000
## President's Budget
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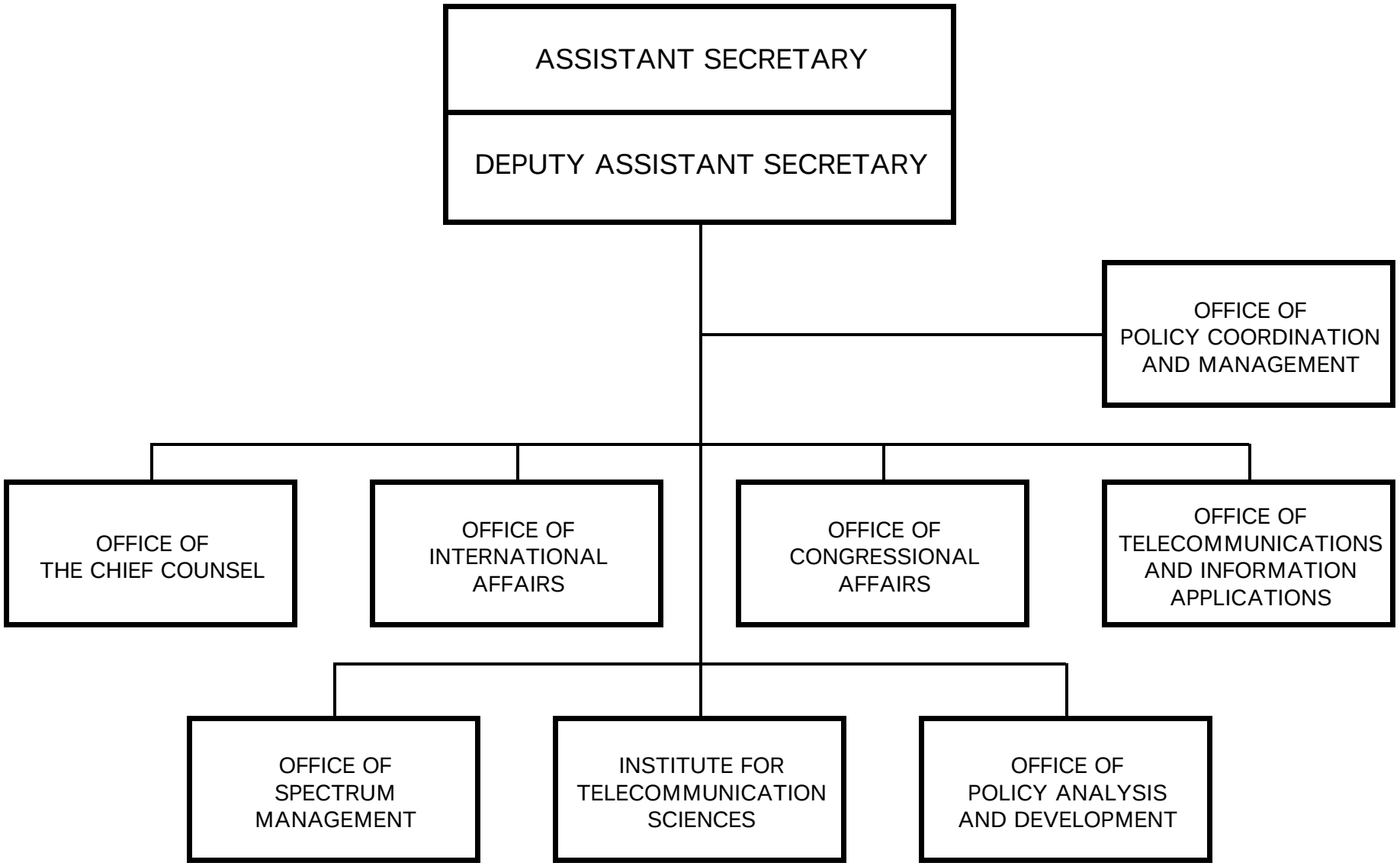
# NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION



**DEPARTMENT OF COMMERCE**
**NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION**
**Fiscal Year 2000 President's Budget**

## Executive Summary

## Goals of the Program

The National Telecommunications and Information Administration (NTIA) is responsible for the development and presentation of domestic and international telecommunications and information policy for the Executive Branch, for ensuring the efficient and effective use of the Federal radio spectrum, for performing state-of-the-art telecommunications research, engineering, and planning, and for administering the Federal programs that support telecommunications facilities for education, health care, and other social services. The FY 2000 budget request will support NTIA's primary goals of:

- Promoting open markets and encouraging competition;
- Ensuring spectrum provides the greatest benefit to all people;
- Advancing the public interest in telecommunications, mass media, and information; and
- Promoting the availability and sources of advanced telecommunications and information services.

## Environmental Assumptions

The telecommunications and information industry is one of America's most successful high-technology industries. Advanced telecommunications has become a driving force for industrial efficiency and competitiveness throughout the economy. It also plays an increasingly important role in the daily life of the American family.

NTIA's budget proposal contributes to the accomplishment of the main strategic planning themes of the Department of Commerce -- building for the future and promoting U.S. competitiveness abroad; keeping America competitive with cutting-edge science and technology and an unrivaled information base; and providing effective management and stewardship of our nation's resources. NTIA will work with the private sector and public officials in government to promote policies that stimulate private investment, create new job opportunities for U.S. citizens, reduce needless regulatory oversight, encourage improved use of radio spectrum, lead to better delivery of social services through telecommunications, provide U.S. leadership in international telecommunications standards-setting forums and trade negotiations, and ensure that the latest technological advances are applied to develop the world's best telecommunications and information infrastructure.

## Statement of Objectives

### Information Infrastructure Grants

NTIA administers the Information Infrastructure Grants program which provides grants to assist state and local governments, universities and schools, hospitals and other health care providers, and other social service entities to purchase equipment, develop new applications and undertake the planning needed to ensure effective development of the telecommunications and information infrastructure.

### Salaries and Expenses

The Salaries and Expenses appropriation supports the following major activities: domestic policy, international policy, spectrum management, telecommunications research and engineering.

NTIA's domestic policy activities focus on improving the way communications services and products are provided to the public. The relative importance of current domestic telecommunications and information policy issues are continually evaluated to determine the highest priority items for immediate Executive Branch attention. Legislative initiatives and Federal Communications Commission (FCC) dockets also influence NTIA domestic policy activities.

In the international area, NTIA develops and advocates regulatory and technical policies that will improve the international competitiveness of the U.S. telecommunications and information industry and the ability of U.S. businesses and consumers to have access to high-quality, reasonably-priced international services. NTIA will continue to develop international policies that promote effective competition, including a diversity of facilities and services, and open markets for U.S. service providers and equipment suppliers. Telecommunications standards will continue to provide the basis for U.S. equipment manufacturers and service providers to compete in global markets. NTIA's continuing participation in domestic and international standards-setting forums also strengthens the competitiveness of U.S. telecommunications and information services.

As the manager of Federal radio frequency spectrum, NTIA must ensure that all government needs for vital telecommunications services can be satisfied nationally and internationally. In light of technological growth, the advent of new satellite technology, unprecedented demands on the allocation of spectrum, the need for more rapid communications, and the transfer of large volumes of information, the national and international uses of spectrum have increased and are expected to increase dramatically. NTIA will formulate plans and policies to ensure the most efficient, effective and equitable use of the radio frequency spectrum. Since FY 1996, Congress has mandated apportioning the costs of spectrum management among the Federal agency users. For FY 2000, NTIA is requesting increased reimbursable budget authority to offset the cost of NTIA providing spectrum management and related services to those user agencies (as directed by House Report No. 105-207). The President, following the recommendations of a Commission created under Executive Order 13010, has directed the establishment of an interagency program addressing the Nation’s need for protection of its critical infrastructures. The program is coordinated across the Government at a senior level in the National Security Council. NTIA will serve as the Lead Agency, on behalf of the Department of Commerce, for the Information and Communications Sector. NTIA is requesting additional resources (described briefly in the Summary of Proposed Increases section) to fulfill the responsibilities of the Presidential Decision Directive on Critical Infrastructure Protection (PDD 63).

NTIA's telecommunications research and engineering is designed to keep the United States at the forefront of telecommunications technology and ensure that American firms have the technical knowledge available to stimulate product development. Research is directed toward improving the understanding of radio-wave transmission to enhance spectrum utilization and the performance of radio

communication systems. This research results in spectrum use concepts and models that lead to more efficient industry and government use of the radio frequency spectrum and electromagnetic wave and propagation models that lead to improvements in radio system performance. NTIA also performs studies directed toward developing domestic and international telecommunications performance standards, assessing the performance of industry and government telecommunications networks, and evaluating new technologies for applications for future needs. These activities facilitate competition in the U.S. telecommunications industry, promote international trade opportunities for U.S. telecommunications firms, and improve the cost effectiveness of government telecommunications use.

**Public Telecommunications Facilities, Planning and Construction**

Under the Public Telecommunications Facilities Program, NTIA has assisted, through matching grants, in the planning and construction of public broadcasting facilities to extend delivery of public broadcasting services to as many Americans as possible by the most efficient and economic means; to increase public broadcasting services and facilities available to, operated by, and owned by minorities and women; and to strengthen the capability of existing public television and radio stations to provide public broadcasting services to the public. NTIA will continue to assist public broadcasters to utilize digital technologies to improve the public broadcasting infrastructure and expand services to the public.

## Summary of Proposed Increases

NTIA's FY 2000 budget initiatives are focused on improving the quality of telecommunications provided to the public and private sectors. The following are summaries of the proposed FY 2000 initiatives:

## Information Infrastructure Grants

- **Information Infrastructure Grants ($2 million, 0 FTEs).**

NTIA's activities under this initiative are part of the Administration's initiative with academia and industry to developed advanced network technologies, develop revolutionary applications that require advanced networking, and demonstrate these capabilities on testbeds that are 100 to 1,000 times faster end-to-end than today's Internet. NTIA's initiative will ensure that the benefits of the Next Generation Internet (NGI) developed technologies rapidly reach and significantly benefit the Nation. NTIA will administer a

competitive, merit-based grant program demonstrating NGI capabilities in the application areas of education, culture, and lifelong learning; public safety; government and public services; health; and community and economic development.

**Salaries and Expenses**

- **Critical Infrastructure Protection, Lead Agency ($2.5 million, 13 FTEs).**

The President has assigned to the Department of Commerce the lead agency responsibilities for the information and communications sector of the Critical Infrastructure Protection program. The Secretary of Commerce has designated NTIA to carry out those responsibilities, including ensuring that Commerce and private sector perspectives on infrastructure assurance are adequately reflected in Government deliberations; preparing the sector infrastructure assurance plan, which will become a major element of the national infrastructure assurance plan; and developing and implementing an awareness and education program for the sector.

- **Critical Infrastructure Protection, Information Sharing and Analysis Center (ISAC) ($1 million, 3 FTEs).**

Another part of the PDD 63 directs that the Government shall "strongly encourage the creation of a private sector information and analysis center." While the PDD is not proscriptive regarding functions, organization or operation, NTIA anticipates that the ISAC could serve as the medium for gathering, analyzing, appropriately sanitizing and disseminating private sector information to both industry and the National Infrastructure Protection Center in the Federal Bureau of Investigation. NTIA also envisions the ISAC as a mechanism for sharing important information about vulnerabilities, threats, intrusions and anomalies.

- **Critical Infrastructure Protection, Research ($803 thousand, 5 FTEs).**

The Institute for Telecommunication Sciences, the chief research and engineering arm of NTIA, serves as the principal Federal source for solving telecommunications concerns for the Federal Government, state and local governments, private corporations and associations, and international organizations. The Institute has had many years of experience in addressing infrastructure issues, including network planning, reliability and performance, communication encryption, spectrum use and interference. Responding to the Presidential Decision Directive on Critical Infrastructure Protection, NTIA will address both physical and cyber threats to the Public Telecommunications Network and the Internet. The research program will be ramped up over the next few years and will include intrusion monitoring and detection, vulnerability assessment and systems analysis, protection and mitigation, and incident response and recovery.

- **Broadband Network Development ($1.2 million, 14 FTEs).**

As dramatically successful and useful as today's Internet and other advanced telecommunications networks are, there will be many developments to come. The future depends on interrelated developments in technology, competition, and regulation. The Federal Government must be actively engaged in these developments. Industry and Government each have roles in this process. The Federal Government, for its part, needs to assist in the development of broader-band networking through research and demonstration programs/testbeds. NTIA will upgrade the Radio Spectrum Measurement System (RSMS) to support public and private sector activities working toward advanced broadband networks of the future. The upgrade will provide an essential capability for measuring spectrum characteristics of new broadband techniques, such as digital signals, spread spectrum or code-division modulation, which the RSMS cannot now effectively measure. In subsequent years, NTIA will position itself to address further high priority, high visibility topics concerning broadband networks by upgrading its research and development facilities. These updates will include development of an advanced antenna testbed, a multimedia research testbed, and an advanced satellite testbed.

- **World Trade Organization Telecommunications Agreement Implementation ($500 thousand, 2 FTEs).**

In February 1997, 60 countries adopted the World Trade Organization (WTO) Agreement on Basic Telecommunications. This landmark agreement covers more than 95 percent of the world telecommunications revenues and ensures that U.S. companies can compete against and invest in telecommunications companies around the globe. A majority of the countries that adopted the agreement, including 30 developing countries, agreed to adopt a uniform set of comprehensive pro-competitive regulatory principles. NTIA has an important role to play in the WTO implementation process. By assisting countries to meet their commitment under the WTO, NTIA can help to maximize the benefits of the agreement for U.S. industry.

- **Spectrum Management Information Infrastructure ($200 thousand, 0 FTEs).**

As manager of the spectrum allocated and used for Federal operations, NTIA must ensure that all Federal needs for spectrum are satisfied to ensure that the public is provided national security, safety, protection, and other public services. NTIA must also ensure that the Federal Government uses the minimum amount of spectrum to do its job, and thus, maximize the spectrum available for the private sector and future spectrum needs. NTIA is proposing to enhance technological development and commercialization by improving the use of spectrum through increased sharing and spectrum efficiency. NTIA will provide a more rapid method for the Federal agencies to obtain spectrum to operate their radiocommunications. NTIA will also provide a method for the radiocommunication manufacturers to ensure that their systems meet Federal spectrum standards and provide the Federal agencies the

means to obtain technical information on radiocommunications for planning spectrum use in the future. (Note: In addition to the direct funding, NTIA is also requesting $800,000 in increased spectrum reimbursements to fund this initiative.)

**Public Telecommunications Facilities, Planning and Construction**

- **Public Telecommunications Facilities, Planning and Construction ($14 million, 8 FTEs).**

For over 30 years, the Public Telecommunications Facilities Program has played a major role in the development of public broadcasting throughout the United States. NTIA, working with the Corporation for Public Broadcasting, will be able to meet the urgent financial needs of broadcasting stations during the transition to digital broadcasting. NTIA will provide competitive grants to encourage the development of innovative, replicable applications of digital broadcasting capability in the public broadcasting environment, and the program will ensure service to rural, disadvantaged, and other underserved communities.

**Summary of Performance and Resources**

- **Performance**

See Exhibit 3A.

- **Resources**

(Dollar amounts in thousands)

| | 1999 Estimate | | 2000 Estimate | | Increase/Decrease | |
|---|---|---|---|---|---|---|
| | FTEs | Amount | FTEs | Amount | FTEs | Amount |
| Information Infrastructure Grant | 34 | $18,000 | 34 | $20,102 | 0 | +$2,102 |
| Salaries and Expenses | 96 | 10,940 | 133 | 17,212 | 37 | +6,272 |
| Public Telecommunications Facilities, Planning and Construction | 13 | 21,000 | 21 | 35,055 | 8 | +14,055 |
| Endowment for Children's Educational Television | 0 | (1,175) | 0 | 0 | 0 | +1,175 |
| Total, NTIA | 143 | $48,765 | 188 | $72,369 | +45 | +$23,604 |

**Exhibit 3a**

# Department of Commerce
# National Telecommunications and Information Administration
# Summary of Goals, Objectives, and Performance Measures

DOC THEMES

The Department of Commerce promotes job creation, economic growth, sustainable development, and improved living standards for all Americans, by working partnership with business, universities, communities, and workers. The Commerce mission incorporates three themes:
A - Build for the future and promote U.S. competitiveness in the global marketplace, by strengthening and safeguarding the nation's economic infrastructure;
B - Keep America competitive with cutting-edge science and technology and an unrivaled information base; and,
C - Provide effective management and stewardship of our nation's resources and assets to ensure sustainable economic opportunities.

NTIA STRATEGIC GOALS

#1 - Promote open markets and encourage competition. (DOC Theme A)
#2 - Ensure spectrum provides the greatest benefit to all people. (DOC Theme C)
#3 - Advance the public interest in telecommunications, mass media, and information. (DOC Theme B)
#4 - Promote the availability and sources of advanced telecommunications and information services. (DOC Theme A)

| SUMMARY OF NTIA'S GOALS, OBJECTIVES AND PERFORMANCE MEASURES | | | |
|---|---|---|---|
| DOC Theme | NTIA Goals | NTIA Objectives/*Program Support | Performance Measures |
| A | #1 - Promote open markets and encourage competition. | 1.1 Open markets to competition leading to lower prices, increased innovation, and more options for consumers.<br>*Domestic Policy<br>*International Activities<br>1.2 Increase competitive choices for telecommunications and information services for all consumers.<br>*Domestic Policy<br>1.3 Advocate a more procompetitive international satellite services market.<br>*International Activities<br>1.4 Advance U.S. policy and commercial interests in bilateral, regional and international fora.<br>*International Activities<br>1.5 Assist developing countries in strengthening their telecommunications and information infrastructures.<br>*International Activities | PM1.1 Monitor impact of U.S. regulatory policies on competitiveness of foreign companies operating in the U.S., assessing comparable foreign regulatory, environments in terms of equivalent opportunities for U.S. companies operating abroad.<br><br>PM1.2. Monitor accomplishments of WTO/GBT signatories in establishing an independent regulator; creating transparent and non-discriminatory licensing requirements; and defining clear time frames, definitions and negotiating principles for interconnection.<br><br>PM1.3. Work with legislators to achieve U.S. legislation that supports U.S. interests to leverage the ISOs restructuring.<br><br>FY 2000 OUTPUTS: Pro-competitive U.S. policies, including regulatory policy development and policies related to technology and market convergence.<br>FCC Filings<br>Bilateral, regional, and international fora participation.<br>Programs to assist emerging market countries to build infrastructure.<br>Specific policy guidance to Comsat.<br><br>FY 2000 OUTCOMES: Increase pro-competitiveness position.<br>Greater consistency between FCC and Executive Branch and increased coordination and consistency of NTIA and Executive Branch policy efforts.<br>Adoption of pro-competitive regulatory reforms by individual U.S. trading partners, regional and international organizations.<br>Continued and enhanced implementation of the WTO Agreement.<br>Progress on infrastructure development in emerging countries.<br>Enhanced competition in international satellite services market.<br>Restructuring of Intelsat and Inmarsat |

| SUMMARY OF NTIA'S GOALS, OBJECTIVES AND PERFORMANCE MEASURES | | | |
|---|---|---|---|
| DOC Theme | NTIA Goals | NTIA Objectives/*Program Support | Performance Measures |
| C | #2 - Ensure spectrum provides the greatest benefit to all people. | 2.1 Develop and implement spectrum plans and policies for both government and private sector users.<br>*Spectrum Management<br>2.2 Satisfy the spectrum needs of Federal government agencies.<br>*Spectrum Management<br>2.3 Advance development of spectrally efficient technologies.<br>*Spectrum Management<br>*Telecommunications Research<br>2.4 Improve the management processes of Federal and non-Federal spectrum to maximize the value of spectrum to society.<br>*Spectrum Management<br>*Domestic Policy | PM2.1a. Develop long range plans to meet the spectrum needs of the Federal government, including public safety and emergency.<br><br>PM2.1b. Establish follow-on program to the Public Safety Wireless Advisory Committee (PSWAC) to address PSWAC recommendations including future spectrum needs.<br><br>PM2.3. Implement Federal standards, rules, regulations & procedures.<br><br>PM2.4. Process Federal agency requests for spectrum and interference resolution support in a responsive manner.<br><br>PM2.5. Provide spectrum information and consultation.<br><br>FY 2000 OUTPUTS: Coordinated long range plans for spectrum use.<br>Necessary revisions to rules and regulations for spectrum use.<br>Certify spectrum availability for approximately 65 agency major radiocommunication systems.<br>Review & coordinate approximately 50 national satellite systems.<br>Authorize Federal agency frequency use by processing approximately 200,000 frequency assignment action requests from the agencies.<br>Innovative way to share spectrum to allow enhanced services and new opportunities<br><br>FY 2000 OUTCOMES: Resolve spectrum issues, coordinate agency views and establish Federal positions.<br>Satisfy State and Local public safety community's requirements for spectrum.<br>Comply with Balanced Budget Act and provide spectrum for auctioning in support of balancing the budget.<br>Provide a roadmap for spectrum policies leading to satisfaction of future spectrum needs.<br>Satisfy the current and future radiocommunication needs of Federal agencies.<br>Federal agencies need for frequency assignments are satisfied.<br>Enable Licensing |

| SUMMARY OF NTIA'S GOALS, OBJECTIVES AND PERFORMANCE MEASURES | | | |
|---|---|---|---|
| DOC Theme | NTIA Goals | NTIA Objectives/*Program Support | Performance Measures |
| B | #3 - Advance the public interest in telecommunications, mass media, and information. | 3.1 Promote universal service and access.<br>*Domestic Policy<br>3.2 Assist in maintaining and extending the services of public broadcasting and telecommunications facilities, including digital broadcasting applications in the public interest.<br>*Telecommunications Applications<br>3.3 Promote a diversity of choices and programming sources in the mass media.<br>*Domestic Policy<br>3.4 Encourage private sector initiatives to give citizens the ability to protect their children from indecent material.<br>*Domestic Policy<br>3.5 Facilitate private sector determination of the public interest obligations of public broadcasters.<br>*Domestic Policy<br>3.6 Establish principles for the protection of personal privacy.<br>*Domestic Policy<br>3.7 Work to maintain the U.S. telecommunications and information infrastructure in time of crisis.<br>*Infrastructure Assurance | PM3.1: Contributing to the U.S. policy goal of having all segments of the country at or above the 1997 national average for telephone penetration by the Year 2000.<br><br>PM3.2: Contributing to the U.S. policy goal of having all schools and libraries connected to the National Information Infrastructure by the Year 2000.<br><br>PM3.3: Promote telecommunications and mass media infrastructure development by using Internet technologies for information dissemination; highlighting technology issues and resolutions; completing negotiations with equipment manufacturers on commercialization of NTIA developed, patented technologies; and assisting additional other Federal agencies on spectrum requirements, network planning, standards development, and/or systems evaluation.<br><br>PM3.4 Develop content policy models that are adaptable to different cultural beliefs, reliant on non-governmental solutions to issues.<br><br>FY 2000 OUTPUTS: Major Conferences focusing attention on current issues<br>Filings before FCC [various filings]<br>Outreach on universal service programs<br>Wireless Local Loop/Promote Infrastructure Development, Measurement & Testing – CRADA<br>Cooperative Research to test the transmission of high quality voice/data/video WLL technology<br>Reports on current telecommunications issues<br>Monitor effectiveness of self-regulatory privacy regimes.<br>Promote U.S. policy goal of protecting children from inappropriate material on the Internet.<br><br>FY 2000 OUTCOMES: Strategies to extend universal service<br>Contributions to the Debate & Solution<br>NTIA participation in major relevant forums, on net publications<br>Wireless Local Loop (WLL): transmission of voice/data/video testing/results/quality measurements/evaluation of WLL technology |

| SUMMARY OF NTIA'S GOALS, OBJECTIVES AND PERFORMANCE MEASURES | | | |
|---|---|---|---|
| DOC Theme | NTIA Goals | NTIA Objectives/*Program Support | Performance Measures |
| A | #4 - Promote the availability and sources of advanced telecommunications and information services. | 4.1 Demonstrate advanced, innovative applications of telecommunications and information technology in the non-profit and public sectors.<br>*Telecommunications Applications<br>4.2 Promote the growth of electronic commerce and Internet use domestically and internationally.<br>*Domestic Policy<br>*International Activities<br>4.3 Meet the compelling telecommunications research needs of other Federal agencies and industry through cooperative research and development.<br>*Telecommunications Research<br>4.4 Promote international acceptance of U.S. spectrum proposals.<br>*Spectrum Management<br>4.5 Participate in ITU and domestic standards development to benefit U.S. industry and user interests.<br>*Telecommunications Research<br>*International Activities | PM4.1: Manage the TIIAP and PTFP programs, providing appropriate notice to the public of the program criteria, deadlines, services and activities application requirements, and ensuring the best use of Federal grant funds.<br><br>PM 4.2. Develop and advocate U.S. spectrum proposals for international conferences and study groups. Implement results of these conferences in the United States.<br><br>PM4.3. Monitor use of the Asia Pacific Economic Cooperation's (APEC) Telecom Working Group's Prototype Spectrum Policy and Management Database designed and maintained by NTIA to provide access to market conditions, licensing requirements, and spectrum policy information in 18 APEC Member countries.<br><br>PM4.4. Establish a bilateral/multilateral exchange process to promote joint solutions to cross-border Internet policy issues.<br><br>PM4.5. Adoption of U.S. supported standards for industry within the ITU and within related U.S. telecommunications standards organizations. |
| | | | FY 2000 OUTPUTS: Models for utilizing the information infrastructure by non-profit or public sector organizations. Competition<br>Grants Management – technical expertise; evaluate "usage"<br>Outreach<br>Conference<br>Technical Expertise<br>Models for Applications: Community Networking, Health, Lifelong Learning, and Public Services<br>Public circulation of U.S. proposals for international conferences<br>Final Proposals for and Participation in international conferences<br>Participation in bilateral and multi-lateral conferences.<br>Reports on current telecommunications issues<br>Monitor effectiveness of self-regulatory privacy regimes.<br>Promote U.S. policy goal of protecting children from inappropriate material on the Internet.<br><br>FY 2000 OUTCOMES: Increase the number of Americans receiving a Public TV/Radio signal.<br>Non-profits/Public Sector organizations are aware of new technology and models in their fields.<br>Increased numbers of Minorities, Women, underserved groups participation<br>Models available<br>Every funded model is of NATIONAL interest<br>Greater ITU participation by the private sector.<br>Acceptance of U.S. positions.<br>Report to the President<br>FCC Filing/NTIA paper<br>Private sector Internet coordination.<br>Self-regulation and technological solutions to protect Internet privacy.<br>Continued free flow of data on the Internet. |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

| Page No. | | Positions | Budget Authority | FTE | Direct Obligations |
|---|---|---|---|---|---|
| | Appropriation Available, FY 1999 | 34 | 18,000 | 34 | 18,000 |
| | plus: 2000 Adjustments to base | 0 | 102 | 0 | 102 |
| | 2000 base request | 34 | 18,102 | 34 | 18,102 |
| | plus: 2000 Program changes | 0 | 2,000 | 0 | 2,000 |
| | 2000 Estimate | 34 | 20,102 | 34 | 20,102 |

| | Comparison by activity: | | 1998 Actual Personnel | 1998 Actual Amount | 1999 Currently Available Personnel | 1999 Currently Available Amount | 2000 Base Personnel | 2000 Base Amount | 2000 Estimate Personnel | 2000 Estimate Amount | Increase/ (Decrease) Over 2000 Base Personnel | Increase/ (Decrease) Over 2000 Base Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NTIA- 23 | **Information Infrastructure Grants** | | | | | | | | | | | |
| | Grants | Pos./BA | 0 | 17,000 | 0 | 15,000 | 0 | 15,000 | 0 | 17,000 | 0 | 2,000 |
| | | FTE/Obl. | 0 | 18,511 | 0 | 15,606 | 0 | 15,000 | 0 | 17,000 | 0 | 2,000 |
| | Program Management | Pos./BA | 23 | 3,000 | 34 | 3,000 | 34 | 3,102 | 34 | 3,102 | 0 | 0 |
| | | FTE/Obl. | 23 | 3,271 | 34 | 4,665 | 34 | 3,102 | 34 | 3,102 | 0 | 0 |
| | **TOTALS:** | Pos./BA | 23 | 20,000 | 34 | 18,000 | 34 | 18,102 | 34 | 20,102 | 0 | 2,000 |
| | | FTE/Obl. | 23 | 21,782 | 34 | 20,271 | 34 | 18,102 | 34 | 20,102 | 0 | 2,000 |
| | **Adjustments to obligations:** | | | | | | | | | | | |
| | Recoveries | | | (1,524) | | | | | | | | |
| | Unobligated balance, start of year | | | (2,529) | | (2,271) | | | | | | |
| | Unobligated balance transferred | | | | | | | | | | | |
| | Unobligated balance, end of year | | | 2,271 | | | | | | | | |
| | Unobligated balance, expiring | | | | | | | | | | | |
| | Financing from transfers: | | | | | | | | | | | |
| | Transfers from other accounts (-) | | | | | | | | | | | |
| | Transfers to other accounts (+) | | | | | | | | | | | |
| | Appropriation | | | 20,000 | | 18,000 | | 18,102 | | 20,102 | | 2,000 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
SUMMARY OF FINANCING
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ (Decrease) over 2000 Base |
|---|---|---|---|---|---|
| **Total Obligations** | 21,782 | 20,271 | 18,102 | 20,102 | 2,000 |
| Offsetting collections from: | | | | | |
| Federal funds | | | | | |
| Non-Federal sources | | | | | |
| Recoveries | (1,524) | | | | |
| Unobligated balance, start of year | (2,529) | (2,271) | | | |
| Unobligated balance transferred | | | | | |
| Unobligated balance, end of year | 2,271 | | | | |
| Unobligated balance expiring | | | | | |
| **Budget Authority** | 20,000 | 18,000 | 18,102 | 20,102 | 2,000 |
| Financing: | | | | | |
| Transfer from other accounts (-) | | | | | |
| Transfer to other accounts (+) | | | | | |
| **Appropriation** | 20,000 | 18,000 | 18,102 | 20,102 | 2,000 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

| | | | Absorbed | |
|---|---|---|---|---|
| | FTE | Amount | FTE | Amount |
| **Other Changes:** | | | | |
| 1999 Pay raise | 0 | 16 | 0 | 0 |
| 2000 Pay raise | 0 | 58 | 0 | 0 |
| Within-grade step increases | 0 | 20 | 0 | (20) |
| Civil Service Retirement System (CSRS) | 0 | (5) | 0 | 0 |
| Federal Employees' Retirement System (FERS) | 0 | 6 | 0 | 0 |
| Thrift Savings Plan (TSP) | 0 | 1 | 0 | 0 |
| Federal Insurance Contributions Act (FICA) - OASDI | 0 | 3 | 0 | 0 |
| Health Insurance | 0 | 4 | 0 | 0 |
| Travel (per diem) | 0 | 15 | 0 | 0 |
| Rental payments to GSA | 0 | 5 | 0 | (5) |
| Printing and reproduction | 0 | 3 | 0 | 0 |
| Federal Telephone System | 0 | 1 | 0 | 0 |
| Working Capital Fund | 0 | 65 | 0 | (65) |
| General Pricing Level Adjustment: | 0 | 5 | 0 | (5) |
| **Subtotal, adjustments to base** | **0** | **197** | **0** | **(95)** |
| **Absorbed** | **0** | **(95)** | **0** | **95** |
| **Total, adjustments to base** | **0** | **102** | **0** | **0** |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
Justification of Adjustments to Base
(Dollar amounts in thousands)

| | FTE | Amount |
|---|---|---|
| **Other Changes:** | | |
| Pay Raises | 0 | 74 |
| Full year cost of 1999 pay increase and related costs | | |
| The 1999 President's Budget assumes a pay raise of 3.6% to be effective January 1, 1999. | | |
| Total cost in 2000 of 1999 pay increase | | 44,000 |
| Less amount funded in 1999 | | (28,000) |
| Amount requested in 2000 to provide cost of 1999 pay raise | | 16,000 |
| Payment to Working Capital Fund | | 0 |
| Total adjustment for 1999 pay increase | | 16,000 |
| 2000 pay increase and related costs | | |
| A general pay raise of 4.4% is assumed to be effective January 1, 2000. | | |
| Total cost in 2000 of pay increase | | 53,000 |
| Less amount absorbed in 2000 | | 0 |
| Amount requested for 2000 pay increase | | 53,000 |
| Payment to the Working Capital Fund | | 5,000 |
| Total adjustment for 2000 pay increase | | 58,000 |

| | FTE | Amount |
|---|---|---|
| Within-grade step increases | 0 | 20 |

An increase of $20,013 is required to cover the cost of within-grade step increases. This estimate reflects the net cost of step increases which will be earned in 2000.

| | |
|---|---|
| Estimated number of within-grade step increases | 13 |
| Step increases not earned due to turnover (4.7% x 13) | 1 |
| Average step above step 1 per separation | 4 |
| Average cost per within-grade step increase | 1,873 |
| Gross cost of scheduled step increases ($1,840 x 13) | 24,349 |
| Less savings due to separations ($1,840 x 1 x 4) | ( 7,492 ) |
| Subtotal personnel compensation | 16,857 |
| Benefits | 3,156 |
| Total adjustment to base | 20,013 |

| | | |
|---|---|---|
| Civil Service Retirement System (CSRS) | 0 | (5) |

The percentage of employees covered by the Civil Service Retirement System (CSRS) has decreased as positions filled by employees who are covered by the Federal Employees' Retirement System (FERS) have been filled. The estimated percentage of payroll for employees covered by CSRS will decrease from 18.8% in 1999 to 14.6% in 2000 for employees. Contribution rates will remain at 8.51% for 2000.

| | |
|---|---|
| 2000 ($1,330,000 x .146 x .0851) | 16,525 |
| 1999 ($1,330,000 x .188 x .0851) | 21,278 |
| Total adjustment-to-base | (4,753 ) |

| | FTE | Amount |
|---|---|---|
| Federal Employees' Retirement System (FERS) | 0 | 6 |

The number of employees covered by the Federal Employees' Retirement System (FERS) will increase as the result of positions being filled FY 1998. The estimated percentage of payroll for employees covered by FERS will increase from 81.2% in 1999 to 85.4% in 2000. The contribution rate of 10.7% will remain the same.

| | |
|---|---|
| 2000 ($1,330,000 x .854 x .107) | 121,533 |
| 1999 ($1,330,000 x .812 x .107) | 115,556 |
| Total adjustment-to-base | 5,977 |

| | | |
|---|---|---|
| Thrift Savings Plan | 0 | 1 |

The cost of agency contributions to the Thrift Savings Plan will increase as FERS participation increases. The contribution rate is expected to remain 2%.

| | |
|---|---|
| 2000 ($1,330,000 x .854 x .020) | 22,716 |
| 1999 ($1,330,000 x .812 x .020) | 21,599 |
| Total adjustment-to-base | 1,117 |

| | | |
|---|---|---|
| Federal Insurance Contributions Act (FICA) | 0 | 3 |

As the percentage of payroll covered by FERS increases, the cost of OASDI contributions will increase. In addition, the maximum salary subject to OASDI tax will rise from $70,725 in FY 1999 to $73,275 in FY 2000. The OASDI tax will remain 6.2% in FY 2000.

| | |
|---|---|
| 2000 ($1,330,000 x .854 x .942 x .062) | 66,336 |
| 1999 ($1,330,000 x .812 x .942 x .062) | 63,074 |
| Total adjustment-to-base | 3,262 |

| | | |
|---|---|---|
| Health Insurance | 0 | 4 |

Effective January 1998, NTIA's contribution to Federal Employees' health insurance premiums increased by 4.8%. This represents an increase of $4,032 over the FY 1999 estimate of $84,000.

| | FTE | Amount |
|---|---|---|
| Travel | 0 | 15 |
| Effective January 1998, the General Services Administration raised per diem rates. This increase resulted in a 12.9% increase to NTIA. This percentage was applied to the FY 1999 estimate of $115,000 to arrive at an increase of $14,835. | | |
| Rental Payments to GSA | 0 | 5 |
| GSA has provided an estimated increase of 2.6% in FY 2000. This represents an increase of $4,992 over the FY 1999 estimate of $192,000. | | |
| Printing and reproduction | 0 | 3 |
| The Government Printing Office (GPO) has provided an estimated rate increase of 3.1%. This percentage was applied to the FY 1999 estimate of $100,000 to arrive at an increase of $3,100. | | |
| Federal Telephone System | 0 | 1 |
| An additional $1,176 is required to fund a surcharge of 4.9% for FTS 2000 services. | | |
| Working Capital Fund | 0 | 65 |
| An additional $65,000 is required to fund cost increases in the Departmental Working Capital Fund. | | |
| General Pricing Level Adjustment | 0 | 5 |
| This request applies OMB economic assumptions of 1% for FY 2000 to subobject classes where the prices that the Government pays are established through the market system. Factors were applied to other services ($5,000) | | |
| **Subtotal, adjustments to base** | **0** | **197** |
| **Absorbed** | **0** | **( 95)** |
| **Total, adjustments to base** | **0** | **102** |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Information Infrastructure Grants

| Line Item | | 1998 Actual | | 1999 Currently Available | | 2000 Base | | 2000 Estimate | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| **Information Infrastructure Grants** | | | | | | | | | | | |
| Grants | Pos./BA | 0 | 17,000 | 0 | 15,000 | 0 | 15,000 | 0 | 17,000 | 0 | 2,000 |
| | FTE/Obl. | 0 | 18,511 | 0 | 15,606 | 0 | 15,000 | 0 | 17,000 | 0 | 2,000 |
| Program Management | Pos./BA | 23 | 3,000 | 34 | 3,000 | 34 | 3,102 | 34 | 3,102 | 0 | 0 |
| | FTE/Obl. | 23 | 3,271 | 34 | 4,665 | 34 | 3,102 | 34 | 3,102 | 0 | 0 |
| **TOTAL** | Pos./BA | 23 | 20,000 | 34 | 18,000 | 34 | 18,102 | 34 | 20,102 | 0 | 2,000 |
| | FTE/Obl. | 23 | 21,782 | 34 | 20,271 | 34 | 18,102 | 34 | 20,102 | 0 | 2,000 |

# Department of Commerce
# National Telecommunications and Information Administration
# Information Infrastructure Grants
# Justification of Program and Performance

**Activity: Information Infrastructure Grants**

## Goal Statement

The Administration supports the development of a National Information Infrastructure (NII), which will ultimately interconnect the Nation's businesses, residences, schools, health care facilities, and other public service providers through broadband interactive telecommunications networks. Providing access to all Americans is a key ingredient to successful implementation of the NII. NTIA funding assists state, local, and tribal governments, libraries, health care organizations, community colleges, universities, research facilities, technical schools, community centers, museums, educational and cultural institutions, and other public service providers in purchasing equipment, software and services, planning, training users, and evaluating the application of information infrastructure in a variety of public sector settings. This support is necessary to ensure the establishment of new systems, interconnection among existing systems, and demonstration of innovative applications of the NII in the public and non-profit sectors. Advanced telecommunications and information systems will in turn help to improve education at all levels, improve the delivery of health care, stimulate economic development, strengthen public safety efforts, and allow greater access for ordinary citizens to information resources throughout the country. Improvements in these services are especially needed in rural, remote, and economically disadvantaged areas. The goal of the program is to promote the widespread availability and use of the NII in the public and non-profit sectors through support, evaluation, and dissemination of the results of outstanding projects that deploy and use advanced information and telecommunications systems to serve the public.

## Proposed Legislation

Draft legislation to authorize appropriations for the continuation of this program for FY 2000 will be prepared.

**Explanation and Justification**

The Administration has called for the development of a national broadband, interactive information infrastructure capable of transporting large quantities of data at high speed. Such "information superhighways" will pay enormous dividends to both the Nation's economic competitiveness and the quality of life of all Americans. In the first four years of the program, NTIA has awarded 332 grants in all 50 states for a total of $100 million. These grants have in turn leveraged $155 million in non-Federal matching funds. These awards have gone to rural hospitals, public libraries, schools, community colleges, local governments, and community-based non-profits to use the NII creatively to provide new and improved services to their communities. The program has been exceptionally competitive; the ratio of funds requested to funds awarded for the first three years has been 18 to 1.

The Administration initiative gave the Department of Commerce's NTIA responsibility to manage this program. NTIA's extensive expertise in broadband digital services and radio-based technologies, knowledge of the telecommunications market and regulatory environment, have enabled NTIA to initiate and manage efficiently a telecommunications information infrastructure grant program of this magnitude.

Under the NII program, it is envisioned that the private sector will take the lead in developing the NII. Federal funding will function as a catalyst for private investment. The Federal commitment to the development of an information infrastructure provides incentives (directly through matching grant requirements and indirectly through demonstrations of technology and applications) for other public, private, and non-profit institutions to make additional investments for facilities that complement those funded under this program. The projects funded under this program demonstrate and evaluate innovative uses of advanced information infrastructure in the delivery of a variety of public services at the community level. These projects, by deploying creative solutions to practical problems and by highlighting best practices, are raising our national understanding of how to harness the opportunities provided by the NII to serve the public. By supporting model projects that can be replicated in other communities, the program has a ripple effect that extends beyond the communities that are directly served by the awards.

The program will continue to focus on projects that are locally designed and developed -- projects that address real needs in local communities. For example, the program has supported projects that have enabled home health aides to increase their productivity and care for more patients, allowing more elderly patients to remain at home instead of in nursing homes; provide after school learning opportunities for youths in troubled inner city communities; and give police officers access to vital information in their patrol cars when they need it. The grants do more than provide access to the national information infrastructure. These projects help communities learn how to apply information infrastructure in effective, efficient ways to meet their needs.

The Information Infrastructure Grants Program provides support for innovative projects that can serve as replicable models for other communities to follow. In order for the projects to be replicated and adopted on a large scale, it is essential that they are carefully evaluated that the knowledge gained from their implementation and evaluation be widely disseminated. The program will continue to commit resources to evaluation and

dissemination activities, which will result in a greater awareness in the public and non-profit sectors of how advanced information infrastructure can be used effectively and efficiently to serve the public.

The program will continue to support the application of a variety of technologies, including cellular and other wireless technologies, Internet, digital microwave, Global Positioning System (GPS) and Geographic Information System (GIS), distributed databases, audio and video streaming, and satellite. Applicants can use technologies they believe will best assist them in developing the information infrastructure needed to deliver the services that they propose. Applicants are instructed to make appropriate use of existing infrastructure and to use commercially provided services, wherever possible, to avoid Federal support for redundant facilities.

Noncommercial entities and public institutions in a number of public sectors, including education, health care, government, and public safety, culture, and economic development, are examining the potential of telecommunications and information technology to expand their reach and better serve the public. The base level of funding will permit NTIA to support a broad range of public sector projects using a variety of technologies and methods that will demonstrate the benefits of an integrated NII. This broad focus will allow other organizations to learn from these projects and to model their own infrastructure efforts after the best approach to meet their needs.

**Statement of Operating Objectives**

NTIA will fund innovative projects that will serve as models for using the NII to provide better education for learners of all ages, offer greater access to medical care and improve the health of the public, strengthen communities through economic development and greater civic participation, improve public safety, and make public services more responsive. NTIA will work closely with other Federal agencies to ensure that grants awarded through this program complement and do not duplicate other Federal activities.

NTIA will increase its efforts in evaluation of the program and of the projects that are supported by the program. Through careful evaluation of the grants, the benefits that are being realized and the lessons learned by the funded projects will be better understood. In addition, NTIA will actively disseminate the results of the projects and any evaluation findings through publications, workshops, and postings on its world wide web site.

The IIG supports Theme II of the Commerce Strategic Plan, i.e., “Keep America competitive with cutting-edge science and technology and an unrivaled information base.” The number of models/grants available for non-profit or public sector organizations are:

| 1998 | 1999 | 2000 |
|---|---|---|
| 46 | 50 | 55 |

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Information Infrastructure Grants**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|
| | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Information Infrastructure Grants……Pos./BA | 34 | $18,102 | 34 | $20,102 | 0 | $2,000 |
| FTE/Obl. | 34 | $18,102 | 34 | $20,102 | 0 | $2,000 |

**Information Infrastructure Grants (0 FTEs, $2,000).** Since 1994, the Administration has promoted the National Information Infrastructure (NII), which is enhancing the economic competitiveness of our Nation and improving the delivery of basic public services as we move into the 21st century. NTIA's Information Infrastructure Grant Program, a key component of the NII, has represented that element of the initiative specifically aimed at bringing the benefits of information networks to Americans at the local level and fully utilizing the potential of the NII for public and community services.

In addition to promoting the application of information networks that benefit our Nation's communities, the Administration must ensure that public and community service organizations keep pace with technology. The Next Generation Internet (NGI) and Internet II are components of an Administration initiative in partnership with academia and industry to develop advanced network technologies, develop revolutionary applications that require advanced networking, and demonstrate these capabilities on testbeds that are 100 to 1,000 times faster end-to-end than today's Internet. Funding through the Information Infrastructure Grants Program will be a key component, ensuring that the advantages of NGI-developed technologies rapidly reach and significantly benefit the Nation.

NTIA activities under this budget initiative represent that element of the NGI initiative specifically aimed at accelerating the widespread diffusion of advanced network technologies and their applications in the non-profit and public sector. By stimulating rapid adoption of advanced information technology in the public and nonprofit sectors, the program promotes innovation and economic growth for all American communities. Such demonstrations are in keeping with the recommendations of the President's Information Technology Advisory Committee (PITAC), especially those

urging exploration of the impact of information technology on our economy, society, culture and workplace. Information Infrastructure Grants help ensure that the PITAC's vision that "opportunities are extended to all Americans to increase overall IT [information technology] literacy and access to IT tools for learning, research and collaboration. . . Information technology can be used as a vehicle to help eliminate social and economic inequities. IT tools and applications can provide opportunities that transcend barriers of race, gender, disability, age, income and location." (PITAC, Interim Report to the President, August 1998, p. 41)

Advances in telecommunications and network technologies have a significant and pervasive impact on the way we work, learn, live and communicate. Research efforts in the private, non-profit, and public sector promise to accelerate the development of new technologies that will increase exponentially the capabilities of today's networks. To date, NGI projects have focused on university level scientific and research applications as well as commercial business applications. Public/private partnerships are putting in place the technological capability to explore applications of NGI in the non-profit and public sectors. With the additional funds NTIA will award competitive, merit-based grants that demonstrate NGI capabilities in the non-profit and public service sectors. Demand is already emerging in these sectors. Through these grants, advanced research into tele-immersion and simulation technologies could be extended into our nations classrooms offering students in impoverished urban and remote rural areas an opportunity to participate in real-time virtual learning experiences. In the public safety arena, research on judgement support software could be made available via a network to provide disparate local emergency response teams an assistive tool for informed decision making and efficient resource allocation. In addition, as partnerships develop and new technologies evolve, many new and original applications are anticipated that will not fit readily into preconceived categories.

Grants funded under this initiative will be given with a one year maximum for planning and two years for program demonstration once facilities become available. Projects intending to use the facilities of an NGI test site university must include a signed letter from the participation university indicating its willingness to allow the applicant to use its facilities. Emphasis will be placed on multi-state and regional projects. Grant competitions and other services will be planned and delivered in coordination with other technology programs of the Department of Commerce and other Federal Agencies that participate in the NGI initiative.

**Explanation and Justification**

NTIA has demonstrated expertise in promoting the use of advanced information technologies in the public sector. NTIA has been a major contributor to the development of public service applications of a wide range of interactive technologies in the fields of public safety, lifelong learning, health, economic development, government and public services, and community networking. Progress to date in the fields listed above suggest the potential for revolutionary applications dramatically different than those currently envisioned.

The public and private sectors continue to invest in the development of advanced network technologies through such research programs as the NGI and Internet2. However, significant experimentation through applications of technology in realistic settings will be required for the Nation to

realize the full potential the new research and development programs promise. To date, most support for the development of applications of information infrastructure has been for business, entertainment and other commercial interests. Less investment, however, has been made to develop information infrastructure applications in such areas as crisis management and other application areas primarily driven by the public and non-profit sectors.

Without Federal support, many public sector organizations will not be able to use technology in the near term. The gap between these organizations and those with the resources to acquire advanced technology today will increase. Studies have shown that both rural and urban underserved populations are typically the last populations to have access to and adopt new, beneficial technologies. Without the development of a "critical mass" of technology users in the public sector to drive the implementation of new products and services, many communities will not realize the benefits of the Nation's investment in advanced networking technologies. As a result, disparities between the nation's information "haves" and "have-nots" will increase to the detriment of America's international competitiveness.

Through NTIA's Information Infrastructure Grants Program, the Federal Government has proven an effective means of stimulating the use of information infrastructure in the non-profit and public sectors. Through these grants, applications developed in partnership between researchers and organizations in the public and non-profit sector will serve as a testbed incubator for new developments and an effective source of feedback to identify and refine research objectives. By testing interoperability with other systems, examining the effects of scaling, and exploring the usability of the new technologies in a realistic setting, the projects supported by NTIA will significantly streamline the non-profit and public sectors' acquisition of new technology.

**Strategic Intent**

Promoting the availability and sources of advanced telecommunications and information services is one of NTIA's strategic goals. This initiative contributes significantly to meeting this goal and the three goals in the Department of Commerce's Strategic Plan. Funding for this program will help ensure that technology developed by the private sector and Commerce Department programs is transferred to the non-profit and public marketplace. Secondly, this program will help keep the nation competitive with cutting-edge science and technology and an unrivaled information base by expanding the user base of advanced network technologies. Finally, by ensuring participation of the non-profit and public sectors, the program will help provide effective management and stewardship of our nation's resources and assets to ensure sustainable economic opportunities.

**Operating Objectives**

The objectives of this initiative are to:

- increase the awareness of how advanced information technologies can be used;
- provide the non-profit and public sectors with opportunities to understand how the technologies can be deployed to improve their

operations; and

- working in partnership with other Federal Agencies and private industry, assure that the infrastructure is in place to allow all American communities access to these technologies and advanced services.

NTIA will fulfill the operating objectives through three areas of activities–grant competition, case studies, and sharing of results. NTIA will concentrate on funding a limited number of planning grants in FY 2000, and NTIA intends to emphasize demonstrations of applications in future grant competitions. Successful planning projects will lead to grants which will demonstrate compelling applications of the technology in the public and nonprofit sectors. As the grants are completed, case studies will be prepared to guide others. These case studies will be actively shared throughout all regions serviced by the Economic Development Administration using a full range of dissemination techniques that range from newsletters, web sites, and on-site workshops.

**Performance Measures**

The following table provides the basis for the measuring the effectiveness and program performance related to this initiative:

| | FY 2000 |
|---|---|
| Outputs: | |
| Applications awarded: | |
| Planning | 6 |
| Demonstrations | - |
| Number of regions participating in program (based on applications received) | 6 |
| Outcomes: | |
| Number of case studies of planning and demonstration projects (Cumulative) | Not applicable in first year |

| | |
|---|---|
| Number of workshops assisting public and nonprofit organizations with advanced telecommunications and information technology projects and disseminating results of funded projects | 6 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Information Infrastructure Grants
Program change: Information Infrastructure Grants

| **Object Class** | 2000 Increase |
|---|---|
| 11 Personnel compensation | |
| 11.1 Full-time permanent | 0 |
| 11.3 Other than full-time permanent | |
| 11.5 Other personnel compensation | |
| 11.9 Total personnel compensation | 0 |
| 12.1 Civilian personnel Benefits | 0 |
| 21 Travel and transportation of persons | 0 |
| 22 Transportation of things | 0 |
| 23.1 Rental payments to GSA | 0 |
| 23.2 Rental payments to others | 0 |
| 23.3 Communications, utilities and misc charges | 0 |
| 24 Printing and reproduction | 0 |
| 25.1 Consulting Services | 0 |
| 25.2 Other Services | 0 |
| 25.3 Purchase of goods & services from Gov't accounts | 0 |
| 25.7 Operation and maintenance of equipment | 0 |
| 26 Supplies and materials | 0 |
| 31 Equipment | 0 |
| 41 Grants, subsidies and contributions | 2,000 |
| **99 Total obligations** | 2,000 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual | FY 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ Decrease over 2000 Base |
|---|---|---|---|---|---|
| **Object Class:** | | | | | |
| 11 Personnel compensation | | | | | |
| 11.1 Full-time permanent | 1,297 | 1,330 | 1,388 | 1388 | |
| 11.3 Other than full-time permanent | 0 | 0 | 0 | 0 | |
| 11.5 Other personnel compensation | 54 | 38 | 38 | 38 | |
| 11.9 Total personnel compensation | 1,351 | 1,368 | 1,426 | 1,426 | |
| 12.1 Civilian personnel Benefits | 261 | 275 | 295 | 295 | |
| 13.1 Unemployment Compensation | 0 | 0 | 0 | 0 | |
| 21 Travel and transportation of persons | 209 | 282 | 215 | 215 | |
| 22 Transportation of things | 11 | 12 | 10 | 10 | |
| 23.1 Rental payments to GSA | 206 | 142 | 142 | 142 | |
| 23.2 Rental payments to Others | 0 | 0 | 0 | 0 | |
| 23.3 Commun., util., misc. charges | 37 | 71 | 72 | 72 | |
| 24 Printing and reproduction | 69 | 124 | 103 | 103 | |
| 25.1 Consulting Services | 153 | 58 | 160 | 160 | |
| 25.2 Other services | 503 | 935 | 200 | 200 | |
| 25.3 Purchase of goods and services from Gov't accounts | 393 | 957 | 405 | 405 | |
| 25.7 Operation and maintenance of equipment | 0 | 250 | 29 | 29 | |
| 26 Supplies and materials | 26 | 45 | 20 | 20 | |
| 31 Equipment | 52 | 146 | 25 | 25 | |
| 41 Grants, subsidies and contributions | 18,511 | 15,606 | 15,000 | 17,000 | 2,000 |
| **99 TOTAL OBLIGATIONS** | 21,782 | 20,271 | 18,102 | 20,102 | 2,000 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual | FY 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ Decrease over 2000 Base |
|---|---|---|---|---|---|
| **Personnel Data:** | | | | | |
| Full-Time equivalent Employment | | | | | |
| Full-time permanent | 23 | 34 | 34 | 34 | 0 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 23 | 34 | 34 | 34 | 0 |
| Authorized Positions: | | | | | |
| Full-time permanent | 23 | 34 | 34 | 34 | 0 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 23 | 34 | 34 | 34 | 0 |
| **TOTAL:** | | | | | |
| Full-time equivalent Employment: | 23 | 34 | 34 | 34 | 0 |
| Authorized Positions: | 23 | 34 | 34 | 34 | 0 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|
| 11 Personnel compensation | | | | |
| 11.1 Full-time permanent | | | | |
| Executive level | | | | |
| Senior executive service | 5 | 129 | 129 | |
| Consultants & experts | | | | |
| General schedule | 53 | 1,259 | 1,259 | |
| Subtotal | 58 | 1,388 | 1,388 | |
| 11.3 Other than full-time permanent | | | | |
| General schedule | | | | |
| Consultants & experts | | | | |
| Subtotal | | | | |
| 11.5 Other personnel compensation | | | | |
| Overtime | | | | |
| Cash awards | | 38 | 38 | |
| Subtotal | | 38 | 38 | |
| 11.9 Total personnel compensation | 58 | 1,426 | 1,426 | |
| 12.1 Civilian personnel benefits | | | | |
| Civil service retirement | (4) | 14 | 14 | |
| Federal employees' retirement | 13 | 111 | 111 | |
| Thrift savings plan | 1 | 19 | 19 | |
| Federal insurance contribution act | 6 | 59 | 59 | |
| Health insurance | 4 | 88 | 88 | |
| Life insurance | | 2 | 2 | |
| Medicare | | 2 | 2 | |
| Employees' compensation fund | | | 0 | |
| Other | | | | |
| Subtotal | 20 | 295 | 295 | |
| 21 Travel and transportation of persons | | | | |
| Common carrier | | 75 | 75 | |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|
| Per diem/actual | 15 | 130 | 130 | |
| Other | | 10 | 10 | |
| Subtotal | 15 | 215 | 215 | |
| 22 Transportation of things | | 10 | 10 | |
| Subtotal | | 10 | 10 | |
| 23.1 Rental payments to GSA | | 142 | 142 | |
| Subtotal | | 142 | 142 | |
| 23.2 Rental payments to others | | 0 | 0 | |
| Subtotal | | 0 | 0 | |
| 23.3 Communications, utilities and miscellaneous charges | | | | |
| Rental of ADP equipment | | | | |
| Rental of office copying equipment | | 5 | 5 | |
| Other equipment rental | | | | |
| Federal telecommunications system | 1 | 26 | 26 | |
| Other telecommunications services | | 25 | 25 | |
| Postal Service by USPS | | 16 | 16 | |
| Subtotal | 1 | 72 | 72 | |
| 24 Printing and reproduction | | | | |
| Printing and reproduction | 3 | 103 | 103 | |
| Subtotal | 3 | 103 | 103 | |
| 25.1 Consulting services | | 110 | 110 | |
| Management and professional services | | 50 | 50 | |
| Subtotal | | 160 | 160 | |
| 25.2 Other Services | | | | |
| Advisory & Assistance | | 150 | 150 | |
| Training | | 50 | 50 | |
| Subtotal | | 200 | 200 | |
| 25.3 Purchase of goods and services from Gov't accounts | | | | |
| Training - Office of Personnel Management | | | | |
| Other federal agencies | | | | |
| National Institute of Standards and Tech - Cross Services | | | | |
| National Institute of Standards and Tech - Acctg Services | | 30 | 30 | |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|---|
| | Economic Development Administration | | 20 | 20 | |
| | Office of General Counsel | | 20 | 20 | |
| | National Oceanic and Atmospheric Administration Surveys | | 20 | 20 | |
| | Maintenance of equipment | | 10 | 10 | |
| | GSA reimbursable services | | | | |
| | Payments to Working Capital Fund | 5 | 305 | 305 | |
| | Transfer to General Administration | | | | |
| | Other | | | | |
| | Subtotal | 5 | 405 | 405 | |
| 25.7 | Operation and maintenance of equipment | | | | |
| | Software and hardware maintenance | | 29 | 29 | |
| | Subtotal | | 29 | 29 | |
| 26 | Supplies and materials | | | | |
| | Office supplies | | 5 | 5 | |
| | ADP supplies | | 15 | 15 | |
| | Subtotal | | 20 | 20 | |
| 31 | Equipment | | | | |
| | Office Machines and equipment | | 6 | 6 | |
| | ADP software | | 7 | 7 | |
| | ADP hardware | | 12 | 12 | |
| | Other | | | | |
| | Subtotal | | 25 | 25 | |
| 41 | Grants, subsidies and contributions | | 15,000 | 17,000 | 2,000 |
| **99** | **TOTAL OBLIGATIONS** | 102 | 18,102 | 20,102 | 2,000 |

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
APPROPRIATION LANGUAGE AND CODE CITATIONS

For grants authorized by section 392 of the Communications Act of 1934, as amended, $20,102,000 to remain available until expended as authorized by section 391 of the Act: *Provided*, That not to exceed $3,102,000 shall be available for program administration and other support activities as authorized by section 391: *Provided further*, That, of the funds appropriated herein, not to exceed 5 percent may be available for telecommunications research activities for projects related directly to the development of a national information infrastructure: *Provided further*, That, notwithstanding the requirements of section 392(a) and 392(c) of the Act, these funds may be used for planning and construction of telecommunications networks for the provision of educational, cultural, health care, public information, public safety or other social services: *Provided further*, That notwithstanding any other provision of law, no entity that receives telecommunications services at preferential rates under section 254(h) of the Act (47 U.S.C. 254(h)) or receives assistance under the regional information sharing systems grant program of the Department of Justice under part M of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3796h) may use funds under a grant under this heading to cover any costs of the entity that would otherwise be covered by such preferential rates or such assistance, as the case may be.

47 U.S.C. § 391
47 U.S.C. § 392
47 U.S.C. § 254(h)
42 U.S.C. § 3796h

47 U.S.C. § 391 authorizes the Secretary of Commerce to provide grant funds for the planning and construction of public telecommunications facilities by eligible entities.

47 U.S. C. § 392 sets forth the application requirements to be submitted to the Secretary of Commerce by eligible entities to request grant funds for the construction of public telecommunications facilities.

47 U.S.C. 254(h) sets forth the requirement that certain entities receive telecommunications services at preferential rates.

42 U.S.C. 3796h authorizes the Director of the Bureau of Justice Assistance to provide assistance for regional information sharing systems.

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
ADVISORY AND ASSISTANCE SERVICES
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|
| Management & Professional Support Services | $153 | $ 58 | $160 |
| Studies, Analysis & Evaluations | 361 | 476 | 243 |
| Engineering & Technical Services | 0 | .... | .... |
| Totals | $514 | $534 | $403 |

Management & Professional Support Services: The Information Infrastructure Grants Program will use consultants to review and evaluate grant applications.

Studies, Analysis & Evaluations: In Fiscal Year 2000, the Information Infrastructure Grants Program will conduct follow-on activities related to a comprehensive assessment of the impact of grants funded by the program.

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
PERIODICALS, PAMPHLETS AND AUDIOVISUAL PRODUCTS
(Dollar amounts in thousands)

| | 1997 Actual | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|---|
| Periodicals | $ 10 | $36 | $ 45 | $ 45 |
| Pamphlets | 51 | 15 | 45 | 50 |
| Audiovisual products | 5 | 3 | 5 | 5 |
| Total | $ 66 | $54 | $ 95 | $100 |

The Information Infrastructure Grants Program will utilize periodicals and pamphlets to provide meeting agendas, progress and hearing reports, plus issue NII guidelines and reporting requirements.

Department of Commerce
National Telecommunications and Information Administration
Information Infrastructure Grants
AVERAGE GRADE AND SALARIES

| | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|
| Direct: | | | |
| Average ES Salary | $125,900 | $130,432 | $136,171 |
| Average GS Grade | 12.4 | 11.9 | 11.9 |
| Average GS Salary | $ 56,299 | $ 53,755 | $ 56,120 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

| Page No. | | Positions | Budget Authority | FTE | Direct Obligations |
|---|---|---|---|---|---|
| | Appropriation Available, FY 1999 | 98 | 10,940 | 96 | 10,940 |
| | plus: 2000 Adjustments to base | 0 | 69 | 0 | 69 |
| | 2000 base request | 98 | 11,009 | 96 | 11,009 |
| | plus: 2000 Program changes | 44 | 6,203 | 37 | 6,203 |
| | 2000 Estimate | 142 | 17,212 | 133 | 17,212 |

| Page No. | Comparison by activity: | | 1998 Actuals Personnel | 1998 Actuals Amount | 1999 Currently Available Personnel | 1999 Currently Available Amount | 2000 Base Personnel | 2000 Base Amount | 2000 Estimate Personnel | 2000 Estimate Amount | Increase/ (Decrease) Over 2000 Base Personnel | Increase/ (Decrease) Over 2000 Base Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NTIA- 53 | **Domestic and International Policies** | Pos./BA | 34 | 5,274 | 37 | 4,165 | 37 | 3,852 | 40 | 4,352 | 3 | 500 |
| | | FTE/Obl. | 34 | 5,778 | 37 | 4,298 | 37 | 3,852 | 39 | 4,352 | 2 | 500 |
| NTIA- 70 | **Spectrum Management** | Pos./BA | 39 | 7,822 | 24 | 3,243 | 24 | 3,466 | 40 | 7,166 | 16 | 3,700 |
| | | FTE/Obl. | 39 | 7,317 | 22 | 3,954 | 22 | 3,466 | 38 | 7,166 | 16 | 3,700 |
| NTIA- 104 | **Telecommunication Sciences Research** | Pos./BA | 32 | 3,454 | 37 | 3,532 | 37 | 3,691 | 62 | 5,694 | 25 | 2,003 |
| | | FTE/Obl. | 32 | 3,453 | 37 | 3,533 | 37 | 3,691 | 56 | 5,694 | 19 | 2,003 |
| | **TOTALS:** | Pos./BA | 105 | 16,550 | 98 | 10,940 | 98 | 11,009 | 142 | 17,212 | 44 | 6,203 |
| | | FTE/Obl. | 105 | 16,548 | 96 | 11,785 | 96 | 11,009 | 133 | 17,212 | 37 | 6,203 |
| | **Adjustments to obligations:** | | | | | | | | | | | |
| | Recoveries | | | (17) | | | | | | | | |
| | Unobligated balance, start of year | | | (826) | | (845) | | | | | | |
| | Unobligated balance transferred | | | | | | | | | | | |
| | Unobligated balance, end of year | | | 845 | | | | | | | | |
| | Unobligated balance, expiring | | | | | | | | | | | |
| | Financing from transfers: | | | | | | | | | | | |
| | Transfers from other accounts (-) | | | | | | | | | | | |
| | Transfers to other accounts (+) | | | | | | | | | | | |
| | Appropriation: | | | 16,550 | | 10,940 | | 11,009 | | 17,212 | | 6,203 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
SUMMARY OF FINANCING
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ (Decrease) Over 2000 Base |
|---|---|---|---|---|---|
| **Total Obligations** | 29,956 | 31,556 | 31,553 | 38,556 | 7,003 |
| Offsetting collections from: | | | | | |
| Federal funds | (13,039) | (19,271) | (20,044) | (20,844) | (800) |
| Non-Federal sources /1 | (369) | (500) | (500) | (500) | |
| Recoveries | (17) | | | | |
| Unobligated balance, start of year | (826) | (845) | | | |
| Unobligated balance transferred | 0 | | | | |
| Unobligated balance, end of year | 845 | | | | |
| Unobligated balance lapsing | 0 | | | | |
| **Budget Authority** | 16,550 | 10,940 | 11,009 | 17,212 | 6,203 |
| Financing: | | | | | |
| Transfer from other accounts (-) | | | | | |
| Transfer to other accounts (+) | | | | | |
| **Appropriation** | 16,550 | 10,940 | 11,009 | 17,212 | 6,203 |

/1 Non-Federal users of the Telecommunications Analysis (T.A.) Services program.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

| | | | Absorbed | |
|---|---|---|---|---|
| | FTE | Amount | FTE | Amount |
| **Adjustments:** | | | | |
| Non-recurring item - 1998 Plenipotentiary Conference | 0 | (500) | 0 | 0 |
| Sub-total adjustments: | 0 | (500) | 0 | 0 |
| **Other Changes:** | | | | |
| 1999 Pay raise | 0 | 95 | 0 | 0 |
| 2000 Pay raise | 0 | 264 | 0 | 0 |
| Full year cost in 2000 of positions financed for part-year in 1999 | 0 | 78 | 0 | 0 |
| Within-grade step increases | 0 | 61 | 0 | (61) |
| Civil Service Retirement System (CSRS) | 0 | (29) | 0 | 0 |
| Federal Employees' Retirement System (FERS) | 0 | 36 | 0 | 0 |
| Thrift Savings Plan (TSP) | 0 | 7 | 0 | 0 |
| Federal Insurance Contributions Act (FICA) - OASDI | 0 | 19 | 0 | 0 |
| Health Insurance | 0 | 14 | 0 | 0 |
| Unemployment Compensation | 0 | (3) | 0 | 0 |
| Travel (per diem) | 0 | 30 | 0 | 0 |
| Rental payments to GSA | 0 | 28 | 0 | (28) |
| Printing and reproduction | 0 | 4 | 0 | 0 |
| Federal Telephone System | 0 | 3 | 0 | 0 |
| Postage | 0 | 1 | 0 | 0 |
| Working Capital Fund | 0 | 509 | 0 | (459) |
| General Pricing Level Adjustment | 0 | 10 | 0 | (10) |
| Sub-total, other changes: | 0 | 1,127 | 0 | (558) |
| **Subtotal, adjustments to base** | **0** | **627** | **0** | **(558)** |
| **Absorbed** | **0** | **(558)** | **0** | **558** |
| **Total, adjustments to base** | **0** | **69** | **0** | **0** |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
Justification of Adjustments to Base
(Dollar amounts in thousands)

| | FTE | Amount |
|---|---|---|
| **Adjustments**: | | |
| FY 1998 Plenipotentiary Conference | 0 | (500) |

The FY 1999 budget included $500,000 to pay for the final Departmental costs of hosting the Conference. No additional costs are expected in FY 2000.

**Other Changes:**

| | | | |
|---|---|---|---|
| Pay Raises | | 0 | 359 |
| Full year cost of 1999 pay increase and related costs | | | |
| The 1999 President's Budget assumed a pay raise of 3.6% to be effective January 1, 1999. | | | |
| Total cost in 2000 of 1999 pay | 260,000 | | |
| Less amount funded in 1999 | (165,000) | | |
| Amount requested in 2000 to provide cost of 1999 pay raise | 95,000 | | |
| Payment to Working Capital Fund | 0 | | |
| Total adjustment for 1999 pay increase | 95,000 | | |

| | | FTE | Amount |
|---|---|---|---|
| 2000 pay increase and related costs | | | |
| A general pay raise of 4.4% is assumed to be effective January 1, 2000. | | | |
| Total cost in 2000 of pay increase | 233,000 | | |
| Less amount absorbed in 2000 | 0 | | |
| Amount requested for 2000 pay increase | 233,000 | | |
| Payment to the Working Capital Fund | 31,000 | | |
| Total adjustment for 2000 pay increase | 264,000 | | |
| Full year cost in 2000 of positions financed for part-year in 1999 | | 0 | 78 |

An increase of $78,444 is required to fund the full-year cost in 2000 of positions financed for part-year in 1999. The computation follows:

| | |
|---|---|
| Annual salary of new positions in 1999 | 286,987 |
| 1999 Pay Raise (3.6%) | 10,331 |
| Less 5% Lapse | (14,866 ) |
| Full-year cost of personnel compensation | 282,452 |
| Less personnel compensation funded in 1999 | (221,913 ) |
| Cost of personnel compensation in 1999 | 60,539 |
| Adjustment for 2000 pay raise (.044 x .75 x 60,539) | 1.998 |
| Amount required for personnel compensation | 62,537 |
| Benefits | 15,907 |
| Total adjustment-to-base | 78,444 |

| | FTE | Amount |
|---|---|---|
| Within-grade step increases | 0 | 61 |

An increase of $61,187 is required to cover the cost of within-grade step increases. This estimate reflects the net cost of step increases which will be earned in 2000.

| | |
|---|---|
| Estimated number of within-grade step increases | 111 |
| Step increases not earned due to turnover (17.7 x 111) | 20 |
| Average step above step 1 per separation | 4 |
| Average cost per within-grade step increase | 1,706 |
| Gross cost of scheduled step increases ($1,706 x 111) | 189,366 |
| Less savings due to separations ($1,706 x 20 x 4) | (136,480 ) |
| Subtotal personnel compensation | 52,886 |
| Benefits | + 8,301 |
| Total adjustment to base | 61,187 |

| | FTE | Amount |
|---|---|---|
| Civil Service Retirement System (CSRS) | 0 | (29) |

The percentage of employees covered by the Civil Service Retirement System (CSRS) has decreased as positions filled by employees who are covered by the Federal Employees' Retirement System (FERS) have been filled. The estimated percentage of payroll for employees covered by CSRS will decrease from 51.3% in 1999 to 45.5% in 2000 for regular employees. Contribution rate will remain at 8.51% in 2000.

| | |
|---|---|
| 2000 ($5,811,000 x .455 x .0851) | 225,005 |
| 1999 ($5,811,000 x .513 x .0851) | 253,687 |
| Total adjustment-to-base | (28,682) |

| | | FTE | Amount |
|---|---|---|---|
| Federal Employees' Retirement System (FERS) | | 0 | 36 |
| The number of employees covered by the Federal Employees' Retirement System (FERS) will increase as the result of positions being filled. The estimated percentage of payroll for employees covered by FERS will increase from 48.7% in 1999 to 54.4% in 2000. The contribution rate of 10.7 will remain the same. | | | |
| 2000 ($5,811,000 x .545 x .107) | 338,868 | | |
| 1999 ($5,811,000 x .487 x .107) | 302,805 | | |
| Total adjustment-to-base | 36,063 | | |
| Thrift Savings Plan | | 0 | 7 |
| The cost of agency contributions to the Thrift Savings Plan will increase as FERS participation increases. The contribution rate is expected to remain 2%. | | | |
| 2000 ($5,811,000 x .545 x .02) | 63,340 | | |
| 1999 ($5,811,000 x .487 x .02) | 56,599 | | |
| Total adjustment-to-base | 6,741 | | |
| Federal Insurance Contribution Act | | 0 | 19 |
| As the percentage of payroll covered by FERS increases, the cost of OASDI contributions will increase due to a change in the percentage of salaries subject to FICA. In addition, the maximum salary subject to OASDI tax will rise from $70,725 in FY 1999 to $73,275 in FY 2000. The OASDI tax will remain 6.2% in FY 2000. | | | |
| 2000 ($5,811,000 x .545 x .933 x .062) | 183,198 | | |
| 1999 ($5,811,000 x .487 x .943 x .062) | 165,456 | | |
| Increase (2000 - 1999) | 17,742 | | |
| Other payroll subject to FICA tax in 2000 ($280,000 x .545 x .933 x .062) | 8,827 | | |
| Other payroll subject to FICA tax in 1999 ($280,000 x .487 x .943 x .062) | 7,972 | | |
| Increase (2000 - 1999) | 855 | | |
| Total adjustment-to-base | 18,597 | | |

| | FTE | Amount |
|---|---|---|
| Health Insurance | 0 | 14 |
| Effective January 1998, NTIA's contribution to Federal Employees' health insurance premiums increased by 4.8%. This represents an increase of $13,872 over the FY 1999 estimate of $289,000. | | |
| Employees' Compensation Fund | 0 | (3) |
| The Employees' Compensation Fund bill for the year ending June 30, 1998 is $2,781 less than the bill for the year ending June 30, 1997. The charges will be reimbursed to the Department of Labor pursuant to 5 U.S.C. 8147. | | |
| Travel | 0 | 30 |
| Effective January 1998, the General Services Administration raised per diem rates. This increase resulted in an 18.8% increase to NTIA. This percentage was applied to the FY 1999 estimate of $162,000 to arrive at an increase of $30,456. | | |
| Rental Payments to GSA | 0 | 28 |
| GSA has provided an estimated increase of 2.6% in FY 2000. This represents an increase of $27,768 over the FY 1999 estimate of $1,068,000. | | |
| Printing and reproduction | 0 | 4 |
| The Government Printing Office (GPO) has provided an estimated rate increase of 3.1%. This percentage was applied to the FY 1999 estimate of $126,000 to arrive at an increase of $3,906. | | |
| Federal Telephone System | 0 | 3 |
| An additional $3,087 is required to fund a surcharge of 4.9% for FTS 2000 services. | | |
| Postage | 0 | 1 |
| The postal service implemented a rate increase of 3.1%. This percentage was applied to the FY 1999 estimate of $19,000 to arrive at an increase of $589. | | |

| | FTE | Amount |
|---|---|---|
| Working Capital Fund | 0 | 509 |

An additional $509,000 is required to fund cost increases in the Departmental Working Capital Fund.

| | | |
|---|---|---|
| General Pricing Level Adjustment | 0 | 10 |

This request applies OMB economic assumptions of 1% for FY 2000 to subobject classes where the prices that the Government pays are established through the market system. Factors are applied to communications, utilities, and miscellaneous charges (excluding postage) ($2,000); other services ($4,000); supplies and materials ($2,000); and equipment ($2,000).

| | | |
|---|---|---|
| **Subtotal, adjustments to base** | **0** | **627** |
| **Absorbed** | **0** | **(558)** |
| **Total, adjustments to base** | **0** | **69** |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Domestic and International Policies

| Line Item | | 1998 Estimate | | 1999 President's Budget | | 2000 Base | | 2000 Estimate | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| **Domestic and International Policies** | Pos./BA | 34 | 5,274 | 37 | 4,165 | 37 | 3,852 | 40 | 4,352 | 3 | 500 |
| | FTE/Obl. | 34 | 5,778 | 37 | 4,298 | 37 | 3,852 | 39 | 4,352 | 2 | 500 |

**Exhibit 12**

# Department of Commerce
# National Telecommunications and Information Administration
# Salaries and Expenses
# Justification of Program and Performance

**Activity: Domestic and International Policies**

## Goal Statement

NTIA serves as the principal adviser to the President on telecommunications and information policy. In this role, NTIA formulates, advocates and participates in the implementation of policies that further domestic policy goals and enhance the international competitiveness of U.S. telecommunications and information technology, equipment, and services. These policies further the United States strategic goals of opening markets and encouraging competition; to advance public interest in telecommunications, mass media, and information services; ensuring that spectrum provides the greatest benefit to all people; and promoting the availability of advanced services around the globe. Policy objectives are based on the identification and interdisciplinary analysis of economic, technological, regulatory, legal, social, and foreign policy issues.

## Proposed Legislation

Draft legislation to authorize appropriations for the continuation of this program for FY 2000 will be prepared.

## Base Program

**Domestic Policies** - The telecommunications and information sectors account for about 10 percent of U.S. Gross Domestic Product (GDP), and some experts predict that it will approach 20 percent of our GDP by the year 2004. Thirty-three percent of the GDP growth comes from information technology industries. These sectors comprise a broad range of services and products, including those offered by wired and wireless telephony, broadcast and cable television, the Internet, satellites, and many other means. The Communications Act of 1934, as amended by the Telecommunications Act of 1996 and other enactments, provides a basis for the regulation of many telecommunication and information services and products. Other state and Federal laws also affect the telecommunications and information sectors. Existing laws, regulations, and administrative procedures are subject to enormous pressures created by rapid changes in technology and increased demand for advanced services and equipment. NTIA has the statutory responsibility to serve as the President's principal adviser on telecommunications and information policy

as they pertain to the Nation's economic and technological advancement. NTIA's domestic policy activities require it to evaluate constantly the important current telecommunications and information policy issues and identify those that require Executive Branch attention.

NTIA's policy activities support the Department's strategic theme of promoting job creation, economic growth, sustainable development, and improved living standards, and the theme of technological development. NTIA's policy functions advance all four of the agency's goals and particularly those of opening markets and encouraging competition and advancing the public interest. NTIA addresses these policies within the Administration and to the Congress, the Federal Communications Commission (FCC), state governments, governments of other nations, and ultimately, to the public at large. NTIA's domestic policy activities require it to maintain expertise over all current telecommunications and information policy issues to identify the most important for Executive Branch attention. NTIA makes written recommendations of future courses of action that affect these sectors; it makes recommendations and works with Congress on new or revised laws affecting these sectors; it files detailed written comments to the FCC on specific regulatory proposals; and it reviews a host of issues of interest to the President, Vice President, the Secretary of Commerce, and other officials on an as-needed basis. NTIA also engages in public discussions, meeting with governmental (Federal, state and international) officials and industry representatives. NTIA also facilitates business ownership and participation, including small business and minority participation in these important sectors.

**International Policies** - NTIA develops and implements policies to improve the global competitiveness of the U.S. telecommunications and the information technology (IT) industries. In this capacity, NTIA will undertake actions to enhance growth and expansion of the Global Information Infrastructure (GII) and in its commercial and social uses (electronic commerce and information society). These actions directly support NTIA efforts to open markets and increase competition that, in turn, support the Administration's economic and other policy objectives. While NTIA has principal statutory responsibility for the development and implementation of the United States Government's national and international policy in this area, this activity is undertaken in coordination with the Department of State (DOS) and other Government agencies. NTIA formulates recommendations on U.S. domestic regulation of international telecommunications services for presentation to the Federal Communications Commission (FCC) and others; coordinates Federal Government preparatory activity for international conferences and negotiations related to international radio spectrum utilization, telecommunications standards infrastructure development activities, development of global Electronic Commerce; and advises the DOS on international communications policy. In addition, NTIA supports the trade negotiation activities of the United States Trade Representative (USTR) by providing expert staff to represent U.S. telecommunications and IT interests in those negotiations.

**Explanation and Justification**

**Domestic Policies -** The Telecommunications Authorization Act of 1992 (Public Law 102-538) requires the Secretary of Commerce to assign to the Assistant Secretary for Communication and Information various functions including the authority to serve as the President's principal adviser on telecommunications policies pertaining to the Nation's economic and technological advancement and to the regulation of the telecommunications industry; the authority to provide for the coordination of the telecommunications activities of the Executive Branch and assist in the formulation of policies and standards for those activities, including (but not limited to) consideration of interoperability, privacy, security, spectrum use, and

emergency readiness; the authority to develop and set forth telecommunications policies pertaining to the Nation's economic and technological advancement and to the regulation of the telecommunications industry; and the responsibility to ensure that the views of the executive branch on telecommunications matters are effectively presented to the FCC and, in coordination with the Office of Management and Budget, to the Congress. The range of domestic telecommunications policy issues is broad and increasingly complex, reflecting the rapid changes in telecommunications technology, its application to the marketplace, and a broadening of the number and types of players. Issues include traditional common carrier telephony and cable television; the improvement of radio spectrum management (e.g., spectrum auctions); rules limiting mass media (radio - television) ownership; development of digital television (DTV); implications of Internet growth; and content oriented issues such as privacy, hate crimes, or free speech, using telecommunications. The increasing convergence of telecommunications and information technologies produces novel combinations that challenge accurate prediction. As the formerly disparate telecommunications technologies converge, varied and unique combinations of previously discrete technologies are being created. The convergence of technologies also means the blurring of industry boundaries – previously clearly defined industries that have been regulated by disparate authorities – and the convergence of service offerings. The impact of this convergence on regulatory issues challenges old sensibilities and institutions. The issues for today and tomorrow require NTIA to provide expertise-based leadership and a visionary view of what lies ahead in telecommunications and information. Ideas matter. NTIA's experts will continue to be at the leading edge of policy analysis regarding ideas and issues confronting and shaping telecommunications and information sectors today and for the future.

In past years, NTIA has made contributions to national policy that have long term and tangible benefits to the American people. For example, NTIA's multi-year development and advocacy of a policy to permit the FCC to use competitive bidding in the assignment of radio frequency licenses made possible the first-ever such auctions. These auctions provide a more efficient and faster way for the FCC to choose licensees, and to date, have elicited high bidding of more than $23 billion.

NTIA also made substantial contributions to the passage of the Telecommunications Act of 1996, the most significant change to the Nation's communications law in more than 60 years. On behalf of the Administration, NTIA worked with Congress, the public, and the FCC to enact legislation that, among other things, redefined "universal services" and opening competition among providers from traditionally separate sectors. Following passage of this legislation, NTIA participated in many FCC and state governments proceedings to promote the Administration's priorities regarding implementation of the Telecommunication Act's provisions. These priorities include implementing the definition and funding for universal service, and the development of competition among providers. NTIA more recently worked with the FCC and state governments to develop processes to accomplish the goals of the legislation, and helped form both the sound policy rationales for intricate proposals and crucial support among industry and government decision-makers.

In FY 2000 NTIA will continue its activities to support the Department's strategic themes. NTIA intends to articulate policies on a host of issues surrounding new, better and lower priced communications products and services, including the Internet, in order to suggest ways to remove impediments to their growth and vitality and to encourage their availability to all Americans. NTIA will continue to examine policies that affect the ability of U.S. video services -- including existing broadcasting, cable and satellite video services and future services such as digital television

(DTV) and "open video service," and digital audio radio services -- to provide diverse and affordable media services to American consumers. NTIA will continue to protect the public interest in the regulation of existing emerging mass media services, ensuring the continued diversity of voices in the media. NTIA will recommend regulatory approaches to the new “broadband” services. NTIA will also continue promoting improvements to the current spectrum management system and to examine what regulatory approaches are needed to make wireless services widely available to the public. NTIA will also continue to provide staff support and expertise to the White House and to respond to requests for technical and policy advice from Congress, other Federal Government officials and the private sector.

NTIA will also continue to search for ways to enhance minority participation in telecommunications. Specific efforts that will continue include: (1) directing ComTrain, a training program to assist new minority commercial broadcast owners; (2) disseminating information and conducting seminars on ownership opportunities in telecommunications; (3) developing and commenting on legislative and regulatory proposals that promote minority ownership in telecommunications; (4) working with industry, and other Government agencies on initiatives to increase public/private sector assistance to minorities interested in ownership of telecommunications businesses and services; and (5) promoting TELECAP, a study of capital development strategies for minority investment in telecommunications. NTIA will also continue to analyze policies that affect minority participation in telecommunications.

**International Policies -** The Secretary of Commerce is charged by the Telecommunications Authorization Act of 1992 (Public Law 102-538) with developing and setting forth plans, policies and programs that relate to international telecommunications issues, conferences, and negotiations. The Secretary is also responsible for coordinating economic, technical, operational and related preparations for U.S. participation in international telecommunications conferences and negotiations. Public Law 102-538 requires NTIA to formulate telecommunications and information policy for activities in international organizations such as the International Telecommunication Union (ITU), the Organization of American States Conference on Telecommunications (CITEL), the Organization for Economic Cooperation and Development (OECD), the Asia-Pacific Economic Cooperation Conference (APEC), the Caribbean Telecommunications Council (CTC), the International Telecommunications Satellite Organization (Intelsat), and the International Maritime Satellite Organization (Inmarsat).

The Telecommunications Trade Act of 1988 outlines U.S. policy goals for international telecommunications trade. NTIA assists in implementing the Telecommunications Trade Act, through coordination with the International Trade Administration, USTR and other Government agencies by actively participating in telecommunications talks focusing on select foreign countries in Europe, Asia, and Latin America with significant market opportunities for U.S. providers of telecommunications goods and services as well as in international organizations such as the World Trade Organization (WTO). Within the telecommunications community, NTIA is recognized for its unique capability to blend domestic and international telecommunications and information policy considerations with sound, innovative technological approaches and expertise.

By statute, the President is charged with overseeing Comsat's participation in Intelsat and Inmarsat. This responsibility, under Public Law 102-538, has been substantially delegated to the Department of Commerce acting in coordination with the DOS. This activity has grown in recent years, and will continue to require resources, as both Intelsat and Inmarsat address restructuring including privatization.

NTIA works very closely with representatives from the private sector, seeking their advice and counsel to ensure that their concerns are heard in domestically and in international bodies on all matters relating to telecommunications and information policies affecting trade, services, and procurement. Because of the nature of the telecommunications regulatory environment in the United States, NTIA coordinates its activities closely with the DOS and the FCC, each of which has specific responsibilities defined by laws and executive orders. Coordination is a continual process to ensure that in all international telecommunications deliberations and negotiations, the interests of the U.S. telecommunications and information industries, and the U.S. Government are best advanced.

**Statement of Operating Objectives**

**Domestic Policies -** Through its base program in domestic policies, NTIA will formulate and advocate specific legislative, regulatory, technical, strategic, and institutional plans and policies to the President, within the Executive Branch and before the Congress, the FCC, and relevant industries and organizations. Specifically, NTIA's domestic policy objectives are to open markets to greater competition and development of existing and emerging telecommunications and information services and technologies; promote the public interest in telecommunications, the mass media and information services (which includes such issues as universal availability of telecommunications services at affordable rates, particularly to schools, libraries and hospitals; to increase minority ownership and operation of telecommunications facilities; to encourage deployment of advanced technologies in the U.S. telecommunications industry; establishment of public interest obligations for digital television broadcasters; and development of incentives for diverse telecommunications and information services and distribution mechanisms while protecting data security and privacy).

**International Policies -** NTIA possesses expertise in five essential areas: 1) technical skill; 2) an understanding of the U.S. domestic telecommunications and information technology environment, products, services, policy objectives, and regulations; 3) an understanding of U.S. trade objectives; 4) an understanding of the international telecommunications and information technology policy and regulatory structure and process; and 5) an understanding of the contributions that telecommunications and information technology makes to overall economic growth of emerging nations and the related opportunities to increase the competitiveness of U.S. telecommunications firms and of other U.S. firms operating outside the United States. With this expertise, NTIA develops policy recommendations aimed at improving the competitiveness and market access for U.S. services and equipment. NTIA advocates our national policies before international organizations and in bilateral and multilateral consultations and negotiations.

The objectives for this period can be grouped under topical areas that reflect both the growing importance of telecommunications and information services as a major component of the U.S. trade posture and the rapid advances in technology that are driving telecommunications and information changes. These objectives are to:

- Facilitate development of the GII and Electronic Commerce. NTIA will provide a forum within the Executive Branch and with foreign governments, as well as international entities, for broad discussions and analysis of U.S. policies and regulations effecting provision of

international telecommunications and information technology services and, as well, examine patterns of liberalization internationally to determine how best to enhance the growth of the GII and Electronic Commerce, and the role U.S. suppliers may play in the development of the GII and Electronic Commerce.

- Provide strong leadership to achieve U.S. telecommunications and information policy objectives in international fora, particularly the ITU, the WTO, and the OECD.

- Support initiatives to establish competitive, deregulatory telecommunications and information policies around the world, including the developing nations of Africa, Latin America, China, Eastern Europe, and the Newly Independent States (NIS).

- Preserve the GII as a competitive, market driven environment, free of unnecessary or burdensome regulation in order to promote global Electronic Commerce.

- Support policies to ensure that developing nations share in the economic and social benefits associated with the emerging digital economy and advanced networked communications technology.

- Ensure that the telecommunications and information technology standards setting processes are market driven and do not serve as de facto trade barriers.

- Prepare for and provide U.S. representation in negotiations and consultations to reduce obstacles to the growth of the U.S. telecommunications and information industries.

- Provide policy guidance in the development of procompetitive international satellite communications and other overseas facility operations.

Early in FY 1995, NTIA produced an "Agenda for Cooperation," which serves as the basis for the Administration's specific policies and actions to develop the GII. In 1995, NTIA took the lead in coordinating the U.S. Government's participation in the G7 Information Society Conference held in Brussels, Belgium where Telecommunications ministers from the G7 countries agreed on a Chairmen's Statement that embodied principles to guide the development of the GII. These principles followed substantially the principles put forth in the U.S.'s "Agenda for Cooperation."

In 1996 and 1997, NTIA participated in development of the Administration's "Framework for Global Electronic Commerce," which outlines a non-regulatory, market-driven approach to the development of on-line commerce. Since publication of the Framework in July of 1997, NTIA has had primary responsibility for implementing important components of the policy, including: the development of effective self-regulation and consumer empowerment technology to screen inappropriate content and to protect personal privacy on the Internet, Internet governance issues including privatizing management of the Internet domain name system (DNS), and policy designed to spread development of advanced network

technology and infrastructure.
NTIA participated in the international roll-out of the "Framework," coordinating DOC participation in the Bonn Ministerial Conference where Secretary Daley unveiled the Administrations's E-Commerce plan to the international community. NTIA participated in bilateral discussions with the European Commission, Germany, the Netherlands, the United Kingdom, Japan, Korea, Spain, France, Belgium, Italy, Canada, China and a number of Latin American nations to promote the U.S. approach to regulation of E-Commerce and the Internet.

On Internet governance issues, NTIA conducted two rounds of public comments and produced a final policy statement on management of the domain name system. NTIA will have primary responsibility for implementing this policy, and for securing international support for it. NTIA has participated in formulation and presentation of the Administration's opposition to various proposals to regulate the Internet on a multilateral basis (e.g., the "Bangemann Charter" and various ITU proposals to centralize Internet regulation). NTIA participated in the Transatlantic Business Dialogue (TABD) conference on E-Commerce, the OECD conference in Turku, Finland on "Dismantling the Barriers to Global Electronic Commerce" and serves on the planning body for the follow-up ministerial conference on E-Commerce to be held in October 1998 in Ottawa. In all cases, NTIA has promoted a non-regulatory approach to Internet governance, led wherever possible, by the private sector.

NTIA has had a lead role in implementation of Administration policy on on-line privacy, producing a discussion paper on the "Elements of Effective Self Regulation," which was discussed and refined at a DOC Privacy Summit in June 1998. NTIA participated in the "Focus on Family Summit" on inappropriate Internet content, and co-sponsored, with the Annenburg Foundation, a conference on developing and accessing high-quality Internet content for education and entertainment.

One significant development in the international context has been the development of a number of regional bodies and coalitions with the mandate to seek common positions on matters such as telecommunications and information technology standards. Among these organizations are the European Technical Standards Institute (ETSI) and the Japanese standards organization, Telecommunication Technical Committee (TTC), as well as the U.S. T1 committee. Of a more general nature are organizations such as CITEL (in the Americas), the Asia Pacific Telecommunity (APT) and the Asia Pacific Economic Council (APEC). Organizations such as CITEL in Latin America, the Asia Pacific Telecommunity (APT) and the Asia Pacific Economic Council (APEC) are more general in nature, but are becoming more focused on standards issues. The regionalization of standards-setting reflects some frustration with the ITU's lengthy and arcane procedures and may pose some threat to U.S. industry as regional bodies can use standards as a non-tariff trade barrier. In FY 1998, the EU convened a "Global Standardization Conference." NTIA led the U.S. delegations (joint Government and industry) to preparatory meetings and coordinated the development of U.S. positions with other agencies and the private sector. Through NTIA's efforts, the United States had the lead on Electronic Commerce standards issues at the conference and subsequent bilateral and multilateral discussions. NTIA has also taken an active role in the ITU-2000 planning process, which is seeking to design a more efficient global standards setting process, providing corporate participants a greater voice in directing that process. In turn, the ITU is seeking greater financial support from industry while retaining its fundamental intergovernmental nature. The core decisions on restructuring the ITU addressed at the ITU's 1998 Plenipotentiary Conference hosted by the United States in Minneapolis in the Fall of 1998 will require close supervision to ensure effective implementation.

Characteristic of the dynamic changes at work in the telecommunications and information industry sectors is the increased emphasis placed on telecommunication trade and Electronic Commerce. NTIA applies its in-depth telecommunications and information technology expertise in supporting market access opportunities sought by American industry and the U.S. trade community. In FY 1997, NTIA continued its active participation in World Trade Organization (WTO) negotiations on basic telecommunications, which concluded successfully on February 15, 1997. The North American Free Trade Agreement (NAFTA) was signed by the President on January 17, 1993, and was approved by Congress in November 1993. The agreement became effective January 1, 1994. In FY l997 and FY 1998 NTIA provided support to USTR for activities related to implementation of the telecommunications chapter of the NAFTA, implementation of section #1377 of the 1988 Trade Act and the WTO Agreement on Basic Telecommunications. Specifically, NTIA will continue to work on implementation of the WTO agreement and assist in monitoring the compliance of countries under the agreement. In particular, NTIA will play a leadership role in assisting developing countries in meeting their obligations under the agreement. As EU policies on telecommunications liberalization are implemented in the 15 Member States, NTIA will continue to monitor EU telecommunications and information policy activities. This activity requires on-going research identifying trends in the international economic and regulatory environment, liaison with U.S. industry groups in the United States and overseas, the preparation of position papers and policy recommendations, and regular participation in interagency and intergovernmental meetings on international telecommunications and information issues.

NTIA will continue to promote a non-regulatory approach to Electronic Commerce throughout the world in order to maximize the social and economic benefits on the digital revolution and to ensure continued United States leadership in building the emerging digital economy.

The newly-emerging economies of Eastern Europe, the NIS, China, Latin America and Africa have stimulated demand for resources dedicated to development of the telecommunications and information infrastructure. From the standpoint of the U.S. private sector, infrastructure development is a precondition for most businesses to enter these new markets; for the telecommunications and information technology industries, these infrastructure projects may provide valuable opportunities for direct investment and sales. NTIA has developed a program of activity supporting these nations in their efforts to evaluate development options; to create legislative and regulatory structures to address market needs; and to implement the technical systems required for effective radio spectrum utilization. That program combines policy advocacy and technical and regulatory training programs keyed to the needs and requests of individual nations. During FY 1998, NTIA continued its telecommunications and information infrastructure development programs with greater emphasis on Africa, China and Latin America. NTIA has implemented an agreement with USAID to station, through a detail, a professional staff member in the 11-nation South African Development Community. This staff member draws upon NTIA expertise and provides day-to-day policy and program guidance to senior government officials, parliamentarians and private-sector telecommunications and information technology end users throughout the region. This effort is also specifically oriented to ensuring market access opportunities for U.S. firms. In FY 1998, NTIA conducted its fourth Latin American Telecommunications Summit (LATS). LATS is co-sponsored with the Telecommunications Industry Association and, for three or four days, brings together the Ministers, senior policy staff and procurement officials to conduct high-level policy discussions and to expose these Latin American officials to 30 U.S. telecommunications equipment and/or service providers and their latest technologies. Also, early in FY 1998, NTIA conducted a similar program in China -- China American Telecommunications Summit (CATS). A second CATS is planned for the Spring of 1999.

The two intergovernmental, international satellite communications organizations (ISOs), INTELSAT and Inmarsat, are moving towards privatization. NTIA has traditionally voiced Executive Branch concerns that the international satellite communications sector be open to greater competition allowing market access for numerous service providers and reducing end user prices. The ISOs, while now faced with some intersectoral competition, have generally been able to frustrate competition from alternative satellite service providers. The ISOs have nearly universal market access and are often represented by state-owned operating monopolies with little interest in the expansion of competition. NTIA was generally successful in establishing procompetitive criteria (structural separation) for establishing Inmarsat's affiliate (ICO, Inc.) for provision of global, mobile, handheld telephone – the first phase of Inmarsat's privatization. ICO will be in direct competition with such U.S.-led consortia as Iridium and Globalstar. Inmarsat, itself, is expected to complete privatization in the Spring of 1999. During 1998, INTELSAT similarly launched a spin-off as the first phase of its eventual privatization. Throughout this multi-year process, NTIA has played an integral part in Executive Branch deliberations and the formulation of pro-competitive policies. Also during 1998, the House of Representatives passed legislation (H.R. 1872) dealing with the privatization of the ISOs. NTIA staff were asked to testify on this subject before both the House and Senate Commerce committees. With the privatization of Inmarsat, NTIA will be able to reduce its outlays in support of this portion of ISO activities.

One of NTIA's key activities involves its participation in the ITU. The ITU is the principal international organization addressing telecommunications issues and its membership exceeds 180 nations. As a result of a March 1993 reorganization, the ITU now consists of three distinct sectors (Radiocommunications, Standardization, and Telecommunication Development). Each of these sectors is able to promulgate findings, resolutions and in certain cases Treaty commitments that have a direct bearing on U.S. ability to market its goods and services abroad. NTIA is actively involved in all aspects of the ITU, including study of technical questions presented in Study Groups of the various sectors and participation in a leadership role in the many world-wide conferences governing the various sectors. For instance, NTIA's role as manager of the Federal Government's spectrum use casts NTIA in a pivotal role with respect to the formulation and representation of U.S. interests within the Radiocommunications Sector of the ITU. More generally, as the pace of technological change has accelerated in the telecommunications field, and as U.S. users and manufacturers have increased their own drive to create inter-operable and functionally global markets, NTIA and other interested agencies have been required to step up their participation at all levels of the ITU.

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Domestic and International Policies | Pos./BA | 37 | $3,852 | 40 | $4,352 | 3 | $500 |
| | FTE/Obl. | 37 | $3,852 | 39 | $4,352 | 2 | $500 |

**World Trade Organization (WTO) Telecom Agreement Implementation (+2 FTEs, +$500)**. On February 15, 1997, 69 countries adopted the World Trade Organization (WTO) Agreement on Basic Telecommunications. This landmark agreement covers more than 95 percent of world telecommunications revenues and ensures that U.S. companies can compete against and invest in telecommunications companies around the globe. Prior to this agreement, only 17 percent of the top 20 telecommunications markets were open to United States companies; now they have access to nearly 100 percent of these markets.

A majority of the countries that adopted the agreement, including 30 developing countries, agreed to adopt a uniform set of comprehensive pro-competitive regulatory principles. Many of the participating countries began implementing these principles in January 1998. This requirement will involve a major effort even for many developed countries; it will pose a significant challenge for lesser developed countries. NTIA has an important role to play in the WTO implementation process. By assisting developing countries to meet their commitments under the WTO Agreement, NTIA can help to maximize the benefits of the agreement for U.S. industry.

NTIA's primary international mission is to promote policies that will lead to open, competitive markets. The set of pro-competitive principles that these countries have agreed to adopt provides the ideal vehicle not only to promote these principles, but also to ensure that they are actually implemented. By agreeing to adopt these principles, participating countries have committed to establish independent regulatory bodies, guarantee that companies are able to interconnect with networks in foreign countries at fair prices, forbid anti-competitive practices such as cross-subsidization, and provide transparency of government regulations, spectrum allocation, and licensing. NTIA's international and domestic expertise puts it in the ideal position to assist foreign government officials who are grappling with these concepts and how they should be implemented.

Successful implementation of these principles provides an unprecedented opportunity for the Department of Commerce and U.S. industry. Today, telecommunications is a $600 billion industry; under this agreement it will double or even triple over the next ten years. U.S. companies are the most competitive telecommunications providers in the world; U.S. companies are in the best position to compete and win under the new WTO Agreement. The benefits for U.S. industry will not be realized, however, unless developing countries have the expertise to fully understand and follow through on their commitments under this agreement.

In order to advance reforms in developing countries, NTIA proposes a series of in-country technical assistance programs designed to encourage effective WTO implementation. These Technical Assistance Programs would be targeted to the specific needs of selected nations. In order to properly tailor the programs for each individual country, extensive research regarding the regulatory status and market data for each country needs to be performed. Such resources will be supplied by NTIA as well as other agencies including AID, State and the FCC.

The first step is to assess the current regulatory environments of the participating developing countries and to assist country officials in understanding the scope of the changes that will be required in order to meet their commitments under the WTO Agreement. In order to accomplish this, NTIA would send three-person teams to each region for meetings with each country's Minister and their staff. Based on these meetings and other relevant information, the team would determine where assistance is most needed and desired. The team would then collaborate with the USTTI and relevant Government agencies to develop a package for assistance. NTIA would also explore the possibility of working with the International Telecommunications Union in order to leverage our resources to achieve stated goals.

NTIA proposes a three to five day program (as appropriate for each country), consisting of workshops along the following general topics. The presentations and issues discussed will be tailored to fit the specific regulatory regime and market liberalization status of each country.

Basic Principles of Telecommunications Regulation. The workshop would primarily address the importance of an independent regulatory agency in a liberalized and privatized telecommunications market. For more liberalized countries it would also discuss more advanced topics faced by independent regulators.

Principles of Telecommunications Competition. This workshop would discuss the importance of interconnection and pricing regulation in a competitive marketplace. It would also address consumer-related issues of competition. For more liberalized countries, the workshop would address unbundling and resale mechanisms and pricing alternatives and a discussion of rights of way issues.

Universal Service Approaches. This workshop would discuss approaches to improving the lack of telecommunications access or infrastructure in rural areas. Options such as licensing new carriers for unserved areas and establishing a Universal Service Fund would be addressed.

Spectrum Management and Allocation. The workshop, focused on more liberalized countries, would address the long-term needs of establishing fair and open spectrum management and allocation procedures and any specific short-term needs as appropriate.

Network Applications for Infrastructure Development. This workshop will introduce innovative uses of communications technology and infrastructure to promote health, education, and safety services. The workshop will also discuss the benefits that public-private partnerships can provide to encourage infrastructure development.

Targeted Countries: The targeted countries and the order in which they would receive technical assistance shall be determined by numerous considerations, including:

- Whether a needs assessment has been completed and the value of the information;
- the host's government's availability and desire for the project; and
- availability of other United States Government representatives from other agencies.

NTIA would provide ongoing support and assistance to participating countries in order to ensure implementation of the pro-competitive principles. This would involve:

- Making technical training teams available for in-country consultation.
- Designing and maintaining a web site with current information, a list for the exchange of ideas, and a discussion area for noting latest developments.
- Providing a regular series of satellite meetings for consultation on technical matters.

**Performance Measures**

**Outputs:** Establish consultations on bilateral/ multilateral basis with foreign governments to ensure effective implementation of WTO/GBT commitments and to review information infrastructure policies/regulations that hamper implementation.
Develop U.S. private sector-NTIA working plan to target countries that have weak commitments, to work with their governments/private sectors to implement and/or improve their commitments to telecom sector liberalization.

**Outcomes:** By 2002, 100 percent implementation of country offers made in WTO/GBT process within a two-year margin of their effective date of compliance.

**Developing Countries That Have Adopted the Reference Paper[1/]**
**(Organized by Regional Groups)**

**Latin America (Group #1)**
Chile
Columbia
Peru (1999)
Brazil (conditional)

**Latin America (Group #2)**
Dominican Republic
El Salvador
Guatemala
Mexico

**Latin America (Group #3)**
Dominica (selected services)
Argentina (2000)
Grenada (2007)
Trinidad & Tobago (2010)
Jamaica (2013)

**Asia**
Malaysia
Indonesia (selected services)
Sri Lanka (selected services)
Singapore (2000)
Papua New Guinea (2002)
Thailand (conditional)

**Africa**
Cote D'Ivoire (selected services)
Ghana (selected services)
South Africa (selected services)
Senegal (2006)

**Eastern Europe**
Czech Republic (2001)
Bulgaria (2003)
Poland (2003)
Romania (2003)
Slovak Republic (2003)
Hungary (2004)

[1]Includes Brazil and Thailand even though their agreement to adopt the principles contained in the reference paper is contingent upon future events. Does not include Israel.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Domestic and International Policies
Program Change: World Trade Organization (WTO) Telecom Agreement Implementation

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Telecommunications Specialist | | 15 | 1 | 80,658 | 80,658 |
| Telecommunications Policy Analyst | | 14 | 2 | 68,570 | 137,140 |
| Subtotal | | | 3 | | 217,798 |
| Less lapse | 25.0% | | (1) | | (54,450) |
| Total full-time permanent | | | 2 | | 163,349 |
| 2000 Pay Adjustment | 4.4% | | | | 7,187 |
| | | | | | 170,536 |

| Personnel Data | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 2 |
| Other than full-time permanent | 0 |
| Total | 2 |
| Authorized Positions: | |
| Full-time permanent | 3 |
| Other than full-time permanent | 0 |
| Total | 3 |

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Exhibit 15

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Domestic and International Policies
Program change: World Trade Organization (WTO) Telecom Agreement Implementation

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 171 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| 11.9 | Total personnel compensation | 171 |
| 12.1 | Civilian personnel Benefits | 48 |
| 21 | Travel and transportation of persons | 160 |
| 22 | Transportation of things | 2 |
| 23.1 | Rental payments to GSA | 34 |
| 23.2 | Rental payments to others | 30 |
| 23.3 | Communications, utilities and misc charges | 6 |
| 24 | Printing and reproduction | 5 |
| 25.1 | Consulting Services | 0 |
| 25.2 | Other Services | 0 |
| 25.3 | Purchase of goods & services from Gov't accounts | 14 |
| 25.7 | Operation and maintenance of equipment | 7 |
| 26 | Supplies and materials | 5 |
| 31 | Equipment | 18 |
| **99** | **Total obligations** | 500 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

: Spectrum Management

| Line Item | | 1998 Actual | | 1999 Currently Available | | 2000 Base | | 2000 Estimate | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| **Spectrum Management** | Pos./BA | 39 | 7,822 | 24 | 3,243 | 24 | 3,466 | 40 | 7,166 | 16 | 3,700 |
| | FTE/Obl. | 39 | 7,317 | 22 | 3,954 | 22 | 3,466 | 38 | 7,166 | 16 | 3,700 |

Public Law 105-119 provided the Secretary of Commerce the authority to charge Federal agencies for spectrum management services and to retain the funds and use them as offsetting collections for those services. NTIA collected $7.5 million in FY 1998, and expects to collect $12.9 million in FY 1999 and $14.4 million in FY 2000 from Federal agencies for spectrum management services.

# Department of Commerce
# National Telecommunications and Information Administration
# Salaries and Expenses
# Justification of Program and Performance

**Activity: Spectrum Management**

## Goal Statement

The goals of this activity are to formulate and establish plans and policies that ensure the effective, efficient, and equitable use of the spectrum both nationally and internationally; to develop long range spectrum plans to meet future Federal government spectrum requirements including public safety; to develop plans for managing radiocommunications during emergencies; to provide public access to spectrum management information; to coordinate and register Federal government satellite networks internationally; to satisfy the frequency assignment needs of the Federal agencies; to provide spectrum certification for new Federal agency radiocommunication systems; to perform the necessary engineering analysis for evaluating and planning spectrum use; and to provide the necessary automated data processing (ADP) capability to perform the above with a high degree of quality and timeliness. The objectives of this activity are to:

**Spectrum Plans and Policies**

- Formulate and advocate plans and policies for the effective and efficient use of the spectrum by the Federal Government, and ensure the public safety needs of the Nation are adequately addressed.
- Provide leadership, liaison, and guidance for the integration of National Public Safety telecommunications systems, ensuring interoperability among Federal, state, and local public safety agencies. Provide for the spectrum needs of these integrated systems, ensuring growth into the next century.
- Conduct spectrum training courses and seminars for U.S. and foreign spectrum managers.
- Coordinate, develop and present the Government's contribution to U.S. proposals and positions for international radiocommunications treaty conferences, and International Telecommunication Union (ITU) administrative, policy, and technical fora.
- Analyze other country proposals to international radio conferences and other ITU fora, to determine the impact on U.S. spectrum requirements.
- Participate in bilateral and multilateral meetings on spectrum management issues with foreign administrations.
- Review Federal space systems for compliance with national requirements, coordinate with other Federal and non-government radiocommunication systems, and participate in satellite coordination meetings with other administrations.
- Analyze other country proposals relative to the U.S. spectrum management process.

- Implement the results of international radio treaty conferences.
- Initiate and conduct scientific and technical cooperation in the field of telecommunications and spectrum management with specific foreign countries in accordance with U.S. foreign and international trade policy objectives.
- Participate with other Federal agencies in communications emergency readiness planning and implementation.
- Develop emergency/wartime and long-range plans for use of the spectrum.
- Develop procedures and incorporate them in the planning process for a timely and orderly transition from normal to emergency modes.
- Review Federal space systems for compliance with national requirements and coordinate with other Federal and non-government radiocommunication systems.
- Coordinate non-government space systems with Federal Government radiocommunication systems.
- Formulate and advocate plans and policies necessary in the development of strategies to improve and restore U.S. telecommunications resources.
- Provide strategic national-level spectrum planning to promote effective and efficient spectrum use so that both near-term and long-range spectrum needs of the Federal Government and the private sector can be met.
- Prepare and implement the necessary plans to improve the spectrum management process through the use of advanced data processing techniques.
- Investigate and implement advanced technologies for management of the spectrum to increase its effectiveness and efficiency of use by the Federal Government agencies thereby maximizing spectrum availability for new technologies in the private and public sectors.
- Continue private sector participation in spectrum management and planning efforts.

**Frequency Assignment and Interdepartment Radio Advisory Committee (IRAC)**

- Provide Federal agencies with accurate spectrum management data;
- Process Federal agencies' requests for frequency assignment authorizations and actions;
- Assist non-IRAC agencies in identifying spectrum to meet their radiocommunications needs;
- Provide the necessary administrative support for the IRAC, its subcommittees, and ad hoc groups that provide NTIA advice on spectrum issues and problems;
- Develop and update the Federal government rules and regulations necessary to manage the Federal government's use of the spectrum.

**Spectrum Engineering and Analysis**

- Develop plans for intraservice and interservice sharing in selected bands;
- Evaluate proposed Federal telecommunications systems for certification for spectrum support in accordance with OMB Circular A-11;

- Resolve conflicting requirements concerning Federal agencies' use of the spectrum;
- Plan and coordinate spectrum measurements in selected frequency bands which are conducted under the Telecommunication Sciences Research activity to support spectrum planning, spectrum resource planning assessments, spectrum sharing and compatibility analyses, and compliance with standards and authorized spectrum usage;
- Provide technical engineering and policy analysis support in preparation for and participation at international radio treaty conferences and in the development of domestic spectrum policy and long-range planning;

**Computer Services**

- Operate a range of computer (client-server) systems and networks that provide interoffice communications, the means to process frequency assignment requests, and public access to a growing collection of electronically available spectrum management information;
- Develop and improve engineering and analysis models and tools to support spectrum engineering and analysis and the spectrum authorization processes;
- Develop, modify and implement software that is necessary to operate the spectrum authorization processes, to provide the Federal agencies the computer automated capability to manage their frequency spectrum assets, and to provide the spectrum management community the necessary spectrum information (e.g. the Government Master File) that will enable the Federal agencies to manage their spectrum assets without interference and within the current rules and regulations.

## Proposed Legislation

Draft legislation to authorize appropriations for the continuation of this program for FY 2000 will be prepared.

## Base Program

Explanation and Justification

**Spectrum Plans and Policies**

As part of its role in establishing Federal spectrum management policy, NTIA allocates and assigns the radio frequency spectrum to Federal users. This responsibility includes chairing the Interdepartment Radio Advisory Committee (IRAC), its major subcommittees and various specialized ad hoc groups. The IRAC, which is a committee composed of the representatives of 20 Federal agencies and an FCC liaison, is the primary Executive Branch adviser to NTIA on Federal agency spectrum management. Through the Spectrum Planning, Technical, Radiocommunication

Conference, Emergency Planning and Frequency Assignment subcommittees as well as numerous ad hoc groups, the IRAC advises NTIA on spectrum policy and procedural matters, develops Federal positions on international radio treaty conferences, and provides recommendations for conflict resolution.

With respect to national spectrum concerns, NTIA, in conjunction with the FCC, formulates long-range spectrum allocation plans that respond to the changing requirements of both Government and non-Government services. Spectrum planning is also conducted relative to wartime and emergency conditions.

In recognition of the importance of public safety services to the American public and the importance of spectrum to these activities, NTIA will provide the necessary leadership, technical expertise, applied research, policy guidance, and spectrum management support for the successful coordination of national public safety requirements, goals and objectives both within the Federal Government and the state and local entities and in coordination with the FCC. NTIA will address and support the needs of: (1) the National Performance Review/Access America's Public Safety Wireless Network Program; (2) a follow-on program (National Public Safety Telecommunications Council) to the Public Safety Wireless Advisory Committee (PSWAC) to further address PSWAC recommendations including satisfying future spectrum needs; (3) interoperability between Federal, state and local emergency entities; (4) national and international public safety standards; (5) new technology evaluation and testing; and (6) funding assistance for state and local agencies to adopt new technology. Consideration will also be given to shared and joint use plans, use of standard radio systems, and coordination processes.

In its international spectrum management role, NTIA participates with the FCC and the State Department in preparing for diverse international radio treaty conferences, negotiations and forums on spectrum management, allocations, technical standards and regulation. Specifically, NTIA coordinates and develops the Federal Government's contributions to the U.S. proposals for these treaty conferences and forums and helps prepare the preliminary and final U.S. positions. In many cases, NTIA representatives chair the national preparatory groups for these fora. Also, these representatives are often called on to chair or organize activities on an international level on behalf of the ITU. NTIA analyzes the known intentions and positions of other nations to determine whether U.S. counter-proposals are necessary. NTIA also participates in bilateral negotiations and provides members for the U.S. delegation for radio treaty conferences and other ITU administrative, policy and technical fora. In addition, NTIA works toward building confidence worldwide in U.S. spectrum planning techniques to win support for U.S. positions and participates in the negotiations and forums themselves.

NTIA plays a central role in developing and promoting policy and guidance to improve the Government's emergency communications response posture and the protection of information during electronic transmission or processing.

**Frequency Assignment and IRAC**

NTIA reviews, processes, and authorizes Federal radio frequency assignments. In Fiscal Year 1998, NTIA processed 193,000 Federal agency requests for assignment actions. In Fiscal Years 1999 and 2000, we expect to process approximately 200,000 requests each fiscal year. NTIA also reviews each frequency assignment action to determine the degree of compliance with authorized use and will continue its reviews of Federal frequency assignments to evaluate the validity of current needs. This frequency assignment responsibility involves chairing the IRAC Frequency Assignment Subcommittee (FAS) as well as directing that Subcommittee's activities and providing its administrative support.

The assignment responsibility also involves ensuring that the spectrum needs of certain Government agencies not represented on the IRAC, the United Nations and foreign embassies are met. NTIA maintains and updates files and records for radio spectrum management. The computerized files include: the Government Master File of Frequency Assignments (GMF); portions of the FCC frequency records necessary for use in Federal spectrum management, especially the management of shared Government/non-Government frequency bands; frequency allocation records; terrain elevation data; and Federal systems review data. These diverse files and records provide varied information and publications for NTIA's staff as well as the rest of the spectrum management community. They are also used in the Canada and Mexico spectrum coordination processes with the Federal agencies. The information provided will be used by Federal agencies in proposing frequency assignments and by NTIA personnel in analyzing potential and spectrum sharing interference problems. Also within the spectrum management activity, the NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management governing the Federal spectrum will be updated and administrative support will be provided to the IRAC, the Spectrum Planning Subcommittee (SPS), the Technical Subcommittee, the Radio Conference Subcommittee (RCS), and the IRAC ad hoc groups.

**Spectrum Engineering and Analysis**

NTIA conducts in-depth analyses of spectrum use, technically reviews new Federal radiocommunications systems, including space systems; assists Federal agencies in resolving operational problems; provides technical engineering/policy analysis support for international radio treaty conferences; establishes and improves Federal standards to assure efficient use of the spectrum. The in-depth studies evaluate the effect of existing and planned radiocommunication systems on the radio frequency spectrum and provide technical engineering support for domestic and international policy development and long range planning. These technical/policy analyses will be of two types, the first focusing on the selected portions of the radio frequency spectrum and the second focusing on particular types of uses of the spectrum. Both types of studies will examine present and planned equipment usage to determine if the spectrum is efficiently and effectively used, the potential for compatible sharing of Federal radio services, and the effects of proposed and planned national and international allocation changes on the ability of Federal agencies to complete their mandated missions. NTIA will also investigate the possibility of increased sharing of spectrum resources between Federal and non-Federal radiocommunication systems in order to increase the efficient use of the spectrum within the United States. Results from field and laboratory measurements will aid in the evaluation of frequency utilization, policy compliance, new technologies, and radio frequency interference.

NTIA will continue its system reviews of proposed Federal radiocommunications systems for compliance with Federal regulations and for compatibility with other present and planned systems; and its space system reviews of proposed Federal space systems for coordination requirements with foreign countries and proposed foreign space systems for assessment of compatibility with Federal telecommunication systems. After completion of a preliminary system review, NTIA, with the advice of the Spectrum Planning Subcommittee of the IRAC, provides or denies certification of spectrum support for the system or indicates what changes are required in the system before certification can be provided. System reviews are done at the conceptual, experimental, developmental, and preproduction stages of a given system's procurement cycle, as required by OMB Circular A-11. In Fiscal Year 1998, NTIA conducted 62 system reviews. In Fiscal Years 1999 and 2000, we anticipate conducting 65 system reviews each year.

NTIA will resolve operational conflicts that arise between Federal agencies regarding the use of the spectrum and coordinate the process of meeting spectrum requirements that cannot be satisfied within existing policies and procedures. These operational problems are detected through NTIA studies or brought to the attention of NTIA by other agencies. Solving such problems demands analyses of the effects that proposed changes in frequency assignments, operational procedures, or equipment will have on the electromagnetic environment as well as consideration of the various tradeoffs between technical and operational factors. NTIA will provide solutions to operational problems involving incompatibility between systems. In support of international spectrum management, NTIA will continue to provide engineering analyses on technical issues necessary to support U.S. participation in and preparation for international conferences and meetings.

Extensive radio regulations have been developed, both nationally and internationally, to ensure that various radio services can operate compatibly in the same environment without unacceptable levels of radio interference. These regulations are focused primarily on radio systems utilizing the same allocated bands of frequencies. Recent years have seen a dramatic increase in the number of problems and spectrum issues involving adjacent band interference (i.e., interference from a transmitter operating in one band to a receiver operating in an adjacent allocated band). In the national and international marketplace, adjacent band problems are beginning to surface as the search goes on to identify spectrum for an ever-expanding number of new and innovative radio-based telecommunication services. Billions of dollars of investment are contingent on the availability of spectrum where in-band and adjacent band interference concerns are resolved either through proper coordination or by effective equipment designs through the use of technologies. Within this environment of increased spectrum requirements and new and innovative radio communication systems, the single most challenging issue is the question of how to address the adjacent band interference problem and apply the latest technologies. It is particularly challenging because it involves the effects of adjacent band emission from transmitters and the characteristics of the adjacent band receiving equipment and its interference susceptibility to unwanted signals. The issue of adjacent band receiver susceptibility is particularly challenging because receivers by tradition have not been subject to standards and cost factors that have led to interference prone designs. The key to success in reducing receiver susceptibility is to develop a technical and regulatory framework that maintains flexibility while meeting the overall goal of effective and efficient national and international spectrum management. NTIA will undertake a comprehensive examination of adjacent band and man-made interference, including technical and regulatory issues, and make appropriate recommendations. While a number of the above individual issues and questions have been examined in depth by NTIA and others, a more comprehensive examination of the overall issue will be undertaken. NTIA will explore these and other identified issues and will develop appropriate recommendations.

When completed, a data base will be developed of the allocated frequency bands wherein the projected energy levels in the adjacent bands and other man-made noise would be estimated. Based on these estimates, bands would be prioritized as to urgency and magnitude of the problem and make recommendations as to setting transmitter or receiver spectrum standards among other possible solutions. In addition, algorithms will be developed that use these adjacent band levels and options included the Joint Spectrum Management System (JSMS) used by Federal agencies to consider this information. Short term and longer range solutions at both the national and international level will be pursued.

New technologies can be used to increase the efficiency with which the Government and private sectors use the radio spectrum making more spectrum available, in effect, for other applications. The potential increases in spectrum efficiency will be evaluated for a number of technologies including sectorized and adaptive antennas, spectrum sharing etiquettes, software driven radios, and other means of spectrum sharing. The technologies will be prioritized based on their potential, for increasing spectrum efficiency. The performance limitations of the highest priority technologies will be measured and tested for several generic applications. This will enable the investigation of the usefulness of these technologies for Government applications. Of primary concern is the ability of Government systems to meet mission and performance requirements when using these new technologies. In the out-years, NTIA will focus on a longer term effort of evaluating the Governments use of the spectrum on an allocated band basis and the use of new spectrum efficient technologies that are appropriate for government applications. The outcome of this investigation would be a series of annual reports of their findings including plans for the Federal Government to implement promising technologies. These plans would be coordinated with the Federal agencies after which implementation strategies would be developed.

**Computer Services**

NTIA will continue to provide the information technology necessary to review, process, and authorize Federal radio frequency assignments and necessary to maintain spectrum management databases. Existing automated systems will be enhanced and new automated systems will be developed, as required, to improve the timeliness, efficiency, and effectiveness of the frequency assignment authorization process. NTIA's goal is to ensure that Federal agencies have access to accurate spectrum management data, that Federal agencies have the information technology tools necessary to use that data to create frequency assignments that comply with Federal regulations and procedures for using the radio frequency spectrum, and that NTIA has the information technology required to effectively process agency requests for frequency assignment authorizations in a timely manner.

In order to conduct its various reviews and analyses, NTIA continuously reviews its automated analytical capability to ensure the methods of problem solving are appropriate for new communication systems and for state-of-the-art changes in telecommunications technology. NTIA develops and enhances analytical computer programs that permit rapid computation of potential interference between existing and proposed communications systems. These computer programs must often be tailored to meet the requirements of specific problems. NTIA maintains and enhances local area networks and uses the Internet to support spectrum management activities. NTIA's unclassified local area network supports traditional office automation activities such as e-mail and word processing. A classified local area network provides the NTIA staff with access to the computers that process frequency assignment actions. Internet servers provide spectrum management information on NTIA's World Wide Web pages. Listservs provide a means for electronic conferences.

Statement of Operating Objectives

**Spectrum Plans and Policies**

NTIA will continue to: direct and support the IRAC and its representative subcommittees, both administratively and technically; resolve spectrum management problems between the Federal agencies and other domestic and foreign entities; negotiate with personnel in foreign administrations in support of U.S. goals at international conferences and other ITU fora; develop and modify spectrum policies and procedures for crisis-related situations; conduct long-range strategic Federal and private sector spectrum planning in coordination with the FCC; prepare for and participate in the ITU Radiocommunications Sector (ITU-R) Study Groups' activities; provide emergency readiness planning for the Federal use of the radio frequency spectrum; chair and direct the activities of the Spectrum Planning and Policy Advisory Committee (SPAC); continue spectrum management training activities including support for the U.S. Telecommunications Training Institute (USTTI); formulate policies, issue and revise allocations and regulations concerning Federal spectrum use; identify and provide solutions to issues and deficiencies in the emergency communications planning process in support of the National Communications System (NCS); prepare and implement plans to improve the efficiency and effectiveness of the Federal Government's spectrum management process using current ADP technology; promote and address the public safety community spectrum needs in coordination with the FCC; continue to prepare long range plans based on identification of projected spectrum requirements; and provide the public access to releaseable spectrum management information (Federal agency spectrum use, proposed policy changes, and policy decisions) through NTIA's Center for Spectrum Management Information; and provide the necessary leadership, technical expertise, applied research, policy guidance, and spectrum management support for the successful coordination of national public safety requirements, goals and objectives both within the Federal Government and the state and local entities and in coordination with the FCC.

**Frequency Assignment and the IRAC**

NTIA will: (1) process and authorize frequency assignment actions to ensure interference-free operations to Federal stations; (2) maintain and update spectrum management data bases; (3) issue changes to regulations/allocations; (4) continue to provide administrative support for the IRAC, its subcommittees, and its Ad Hoc groups; and (5) continue to improve and upgrade the electronic archive of the IRAC and distribute it periodically to the NTIA staff and Federal agencies.

**Spectrum Engineering and Analysis**

NTIA will: (1) assess the present and projected Federal use of the spectrum by conducting in depth studies of spectrum use (concentrating on bands and services supporting upcoming international conferences and those where significant improvements in utilization appear possible); (2) resolve operational problems concerning interagency conflicts in the use of the radio frequency spectrum that cannot be satisfied within existing policies and procedures by evaluating tradeoffs between technical and operational factors; (4) evaluate proposed Federal systems to determine compatibility with present and other proposed systems, adherence to regulations and availability analysis (resulting in approval with changes in the frequency band, operational procedures or system design, or disapproval); (5) provide technical support to the IRAC and its subcommittees associated with

the preparation and participation in international radio treaty conferences and RS technical standards groups; (6) undertake a comprehensive examination of adjacent band and man-made interference, including technical and regulatory issues, and make appropriate recommendations; and (7) evaluate a number of technologies to determine their potential spectrum efficiency and their usefulness for Government applications.

**Computer Services**

NTIA will: (1) continue to maintain and update existing computer software used for processing assignments, data bases, and interference calculations; (2) continue to design or implement new software packages to further improve assignment data processing and analytical engineering evaluation; and (3) develop new automated systems to improve access to spectrum management information.

To participate effectively in a national planning process, NTIA must have a clear understanding of how the spectrum is used in all sectors of the United States and be able to apply this knowledge to determine how to satisfy both the private sector and Federal Government requirements for spectrum. NTIA manages the Federal Government agencies' use of the spectrum. NTIA maintains a data base of information that shows the authorizations that have been made and the responsible agency. NTIA also has capabilities to analyze and apply this information to ensure radiocommunication operation without harmful interference. Many of these capabilities are computer automated. There is significant room to improve these spectrum management operations and increase the effectiveness and efficient use of the spectrum. Presently, NTIA has no capability or resources to address private sector requirements except on a small case-by-case basis. Therefore, it has been very difficult to provide fully Executive Branch guidance on national radiocommunication issues and detailed policies. About 93 percent of the spectrum in the United States is shared by users in both the Federal Government and private sectors. For NTIA to clearly address both private sector and Federal Government usage, it must know how the spectrum is used by the private sector. NTIA has developed the Joint Spectrum Management System which includes a method to consolidate information from the FCC with NTIA's data base. With this common data base, automated data processing (ADP) capability, and appropriate analytical capability, NTIA and the Federal agencies are now able to perform such functions as: making applications for spectrum authorization; planning shared spectrum use; assessing spectrum availability for both the private sector and the Federal Government; evaluating the impact of new standards or sharing of radio services; and providing a basis to evaluate new spectrum requirements domestically or internationally. This system will continue to be improved.

NTIA has also been developing a new data dictionary containing more detailed fields of information that will be needed to increase sharing and make use of the spectrum more efficient and effective. The data dictionary, when complete in CY 1999, will be integrated into NTIA's existing frequency assignment and system review processes both internal to NTIA and also within the Federal agency spectrum management processes as well.

NTIA will complete the automation of all documentation used in support of the Interdepartment Radio Advisory Committee and its subcommittees. This will enable the past 70 years' worth of documentation to be contained on CDROM's. The capability to search and sort this information will

also be provided. This automation will enable the Federal agency and NTIA staff to have access to any prior spectrum information for use in resolving spectrum issues, performing spectrum analysis, develop new spectrum policies, or change existing spectrum policies. It will also begin the process of becoming paperless which will increase the effectiveness of the spectrum management IRAC process. This system will be classified and will have to secured and protected accordingly.

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Spectrum Management ..... | Pos./BA | 24 | $3,466 | 37 | $5,966 | 13 | $2,500 |
| | FTE/Obl. | 22 | $3,466 | 35 | $5,966 | 13 | $2,500 |

**Critical Infrastructure Protection - Lead Agency (+13 FTEs, +$2,500).** The President, following the recommendations of a Commission created under Executive Order 13010, has directed the establishment of an interagency program addressing the Nation's need for protection of its critical infrastructures. The program is coordinated across the Government at a senior level in the National Security Council. The primary emphasis in this program is on lead agencies that have been given responsibilities for the protection of infrastructure sectors. The President has assigned to the Department of Commerce the lead agency responsibilities for the information and communications (I&C) infrastructure. The Secretary of Commerce has designated NTIA to carry out those responsibilities.

**Public–Private Partnership to Reduce Vulnerability**: The protection of critical infrastructures in the national interest requires a closely coordinated effort of both public and private sectors since most of the I&C infrastructure is owned and operated by the private sector. The Assistant Secretary for Communications and Information and Administrator of NTIA, will serve as the United States Government Sector Liaison Official (SLO) under Presidential Decision Directive 63 to work with the I&C sector.

**NTIA and the Private Sector:** NTIA will conduct in-depth discussions and workshops with a broad cross section of the I&C sector for the purpose of facilitating the identification of a Sector Coordinator (SC) or, if necessary, several coordinators. The SC is to represent the sector in a wide range of infrastructure assurance matters and is to work closely with NTIA in accomplishing the objectives of the President's program. The characteristics and qualifications of SC make it likely that no existing private sector individual or organization can serve adequately within its current mission. The development of the required new mission, or even a new organization, will require considerable effort as well as sensitivity on the part of NTIA. The President's intention is that the SLO and the SC will cooperate in addressing critical infrastructure assurance matters.

However, the activities of the SC are purely voluntary and the Government has no authority to direct them. NTIA must be in a position to recommend appropriate actions to the President in the event that cooperative efforts fall short. The intention of the President's program is that the SLO and the SC would cooperate in recommending the sector's infrastructure assurance plan, which would become a major element in the National plan, as well as in developing and implementing a vulnerability and awareness program for the sector.

NTIA will be responsible for:

- Ensuring that Commerce and private sector perspectives on infrastructure assurance are adequately reflected in Government deliberations.

- Preparing, in cooperation with the SC(s), the sector infrastructure assurance plan, which will become a major element of the national infrastructure assurance plan (NIAP). The sector plan will include the following elements: an assessment of the sector's vulnerabilities; a system for identifying and preventing major attacks upon the infrastructure; a plan for alerting, containing and defeating an attack; and a plan for recovery and reconstitution of the infrastructure.

- Establishing and maintaining channels of communication with private and public entities, domestic and foreign, having significant interest or involvement in I&C infrastructure assurance and, in coordination with the State Department, encouraging compatible efforts by other countries and international organizations to protect the global I&C infrastructure.

- Developing and implementing, in coordination with the SC, an awareness and education program for the sector.

- Drafting and proposing legislation and regulations that will enhance infrastructure assurance programs, as appropriate.

- Supporting the (to be amended) Federal Response Plan (FRP), coordinating management of the consequences of a successful infrastructure attack and preparing for various contingent attacks through participation in training and exercise programs.

- Coordinating, as appropriate, infrastructure assurance issues and activities with the office of the National Coordinator (NC), the Critical Infrastructure Assurance Office (CIAO) other sector lead agencies, functional lead agencies, the FBI's National Infrastructure Protection Center, as well as with appropriate organizations at all levels of Government.

- Identifying sector research and development (R&D) needs, and incorporating them into the national infrastructure assurance research and development program.

- Facilitating private investment, and/or public incentives, in infrastructure assurance programs, as appropriate.

- Developing budget requirements for infrastructure assurance activities.

**Interagency Coordination: Critical Infrastructure Coordination Group (CICG)**

The Secretary of Commerce has designated the Assistant Secretary for Information and Communication as the Department's representative to the CICG, chaired by the NC for Security, Infrastructure Protection and Counter-Terrorism, who will be responsible for coordinating the implementation of the Critical Infrastructure Protection directive.

**Tasks with specific Deadlines**

National Infrastructure Assurance Plan: The CICG (Principals Committee) will submit to the President a schedule to complete a National Infrastructure Assurance Plan with milestones for accomplishing the following tasks:

(1) vulnerability analysis
(2) remedial plan
(3) warning center
(4) response system
(5) reconstitution of capabilities
(6) education and awareness
(7) research and development
(8) intelligence
(9) international cooperation
(10) legislative and budgetary requirements

**Review and Implementation**

Annual Report: In addition to the above mentioned plan, the NC, working with the National Economic Council (NEC), and based upon materials provided by the lead agencies will provide an annual report on the implementation of this directive to the President and the heads of departments and agencies, through the Assistant to the President for National Security Affairs.

Two Year Review: The Critical Infrastructure Coordination Group (CIGC) will conduct an expert review process for the plans for Critical Infrastructure Protection no later than two years from May 23, 1998. The review process will rely on sector experts and the SLO input. The sector Critical Infrastructure Protection Plans shall be updated every two years.

Following the establishment of an initial operating capability in the year 2000, the NC will conduct a zero-based review. This will require cooperation and coordination with the private sector.

**Structure and Organization**

| | |
|---|---|
| President | Bill Clinton |
| Assistant to the President for National Security Affairs | Samuel R. "Sandy" Berger |
| NC for Security, Infrastructure Protection and Counter-Terrorism (Chairs Principals' Critical Infrastructure Coordination Group (CICG) | Richard Clarke |
| Sector Liaison Official | Assistant Secretary Larry Irving |
| Sector Coordinators | Private Sector Entities to be identified |

**PERFORMANCE MEASURES**

**I. NATIONAL INFRASTRUCTURE ASSURANCE PLAN:** The CICG (Principals Committee) will submit to the President a schedule to complete a National Infrastructure Assurance Plan with milestones for the listed elements of the plan. The plan itself will be completed in FY 2000 and implemented to provide an initial operating capability in the year 2000. The elements of the plan include:

(1) Vulnerability Analysis: NTIA, with the industry Sector Coordinator, must identify national telecommunications and information systems vulnerabilities.

Outputs: A documented characterization of the vulnerabilities of the I&C sector appropriate to serve as a basis for a remedial plan.

Outcomes: The initial operation of a protection plan for the I&C infrastructure based upon the assessment of vulnerabilities and other elements.

(2) Remedial Plan: NTIA, with the industry Sector Coordinator, based on the vulnerability analysis, are to develop and implement a Remedial Plan that addresses key vulnerabilities and assigns responsibilities and identifies funding and other resource requirements.

Outputs: A Remedial Plan with time lines for implementation, assignment of responsibilities and identification of resource requirements.

Outcomes: The initial operational capability to protect the I&C infrastructure.

(3) Response: NTIA and the industry SC shall create a system to respond to a significant infrastructure attack while it is underway, with the goal of isolating and minimizing damage. The first step is development of a response plan, followed by identification of technology needs, designation of responsibilities, and identification of resource requirements.

Outputs: Development of a Response Plan formulated by NTIA and the industry SC to respond immediately to an attack underway on the telecommunications and information infrastructure; documentation of technology and resource needs as well as recommended assignment of responsibilities.

Outcomes: As part of an initial operating capability, a Response Plan to respond immediately to infrastructure attacks underway, isolating and minimizing damage, and an improved capability to defend the infrastructure.

(4) Reconstitution: For varying levels of infrastructure attacks, NTIA and the industry SE create a system to reconstitute minimum required capabilities rapidly.

Outputs: Development of a multi-level defense system by NTIA and the industry SC to respond to varying levels of infrastructure attacks; creation of a system to rapidly reconstitute minimum infrastructure capabilities required.

Outcomes: As part of an initial operational capability, a multi-level defense system to respond to varying levels of infrastructure attacks, and a system to rapidly reconstitute minimum infrastructure capabilities, and an improved capability to defend the infrastructure.

(5) Vulnerability Awareness and Education: NTIA and the industry SC develop Vulnerability Awareness and Education Programs within the Government and private sector to improve the awareness of the general public and specialists in I&C concerning the threats and vulnerabilities of the infrastructure and their implications; and to train people in security practices and standards, particularly regarding cyber systems.

Outputs: Materials for publication, speeches, presentations for audiences at all levels across the infrastructure, exercises, demonstrations and simulations. Formulation of Vulnerability Awareness and Education Programs within the Government and private sector to train people in security practices and standards.

Outcomes: Greater Government and private sector awareness of telecommunications and information infrastructure vulnerability and security standards to protect the infrastructure.

(6) Research and Development: NTIA and the industry SC plan and coordinate Federally sponsored R&D to support infrastructure protection on a multi-year basis, taking into account private sector and foreign research, recommending adequate support to most effectively manage U.S. vulnerabilities on an achievable timetable.

Outputs: Coordination of Federally sponsored R&D on a timely basis by the Government and industry to support infrastructure protection and diminish U.S. vulnerabilities.

Outcomes: Federally sponsored R&D programs incorporating private sector research to diminish U.S. vulnerabilities regarding the telecommunications and information infrastructure.

(7) International Cooperation: With leadership from NTIA, expand cooperation on critical infrastructure protection with like-minded and friendly nations, international organizations, and multinational corporations in order to improve protection of the I&C infrastructure.

Outputs: A plan for expanding cooperation on critical infrastructure protection with like-minded and friendly nations, international organizations, and multinational corporations.

Outcomes: International support and cooperation in achieving an initial operating capability by the year 2000 and to continually improve that capability.

(8) Legislative and Budgetary Requirements: Evaluate the Executive Branch's legislative authorities and budgetary priorities affecting protection of the I&C infrastructure, and make recommendations to the President, as necessary, in coordination with OMB.

Outputs: NTIA proposals for any necessary legislation and regulations that are needed to accomplish the objectives of the President's program. Development of budget requirements for infrastructure assurance-related activities. Development of innovative approaches to funding the necessary actions for I&C infrastructure assurance.

Outcomes: Effective legislation and regulations to enhance and protect the telecommunications and information infrastructure.

**II. ANNUAL REPORT**

Report on Implementation of Critical Infrastructure Program: The NC, working with the National Economic Council (NEC), will provide an annual report on the implementation of this Critical Infrastructure Protection directive to the President and the heads of departments and agencies, through the Assistant to the President for National Security Affairs. As the lead agency regarding telecommunications and information infrastructure protection, NTIA is responsible for drafting the I&C segment of the report, and obtaining proper clearances from the NC and the National Economic Council.

Outputs: Development of an Annual Report by NTIA, following a schedule provided by the NC, on the status of the Critical Infrastructure Protection program, with interagency clearance, to the NC, through the Assistant to the President for National Security Affairs, for the President and the heads of departments and agencies.

Outcomes: Annual Report on the status of the Critical Infrastructure Protection program.

**III. TWO YEAR REVIEW**

The CICG will conduct an expert review process of the plans for Critical Infrastructure Protection no later than two years from May 23, 1998.

(1) Expert Review Process: By May 23, 2000, at the latest, NTIA as the lead agency for protection of critical telecommunications and information infrastructure will participate in and lead portions of an expert review of the plans for Critical Infrastructure Protection, and will submit a report through the NC to the CICG.

Outputs: Drafting of an expert review of the plans for Critical Infrastructure Protection by NTIA, with recommendations.

Outcomes: Expert review of the plans for Critical Infrastructure Protection with recommendations, to the CICG.

(2) Zero-Based Review: Following the establishment of an initial operating capability of the Critical Infrastructure Protection program in the year 2000, the NC will conduct a zero-based review.

Outputs: Following the year 2000, NTIA, as the lead agency for protection of critical telecommunications and information infrastructure, will conduct a zero-based financial review of funding for the Critical Infrastructure Protection program for submission to the NC.

Outcomes: A zero-based financial review of the funding for the Critical Infrastructure Protection program for submission to the NC.

(3) Two-Year Updates of Review: The Critical Infrastructure Protection Plans shall be updated every two years.

Outputs: In the year 2002, and subsequently on a two year cycle, NTIA, as the lead agency for protection of critical telecommunications and information infrastructure, will perform an update of the NTIA/Department of Commerce Telecommunications and Information Infrastructure Protection Plan and the National Infrastructure Assurance Plan, which will be submitted to the NC.

Outcomes: Two-year updates of the Critical Infrastructure Protection Plans to be provided by NTIA to the NC.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Spectrum Management
Program Change: Critical Infrastructure Protection (Lead Agency)

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Director | | SES-4 | 1 | 125,900 | 125,900 |
| Telecommunications Specialist | | 15 | 3 | 80,658 | 241,974 |
| Telecommunications Specialist | | 14 | 3 | 68,570 | 205,710 |
| Telecommunications Specialist | | 13 | 2 | 58,027 | 116,054 |
| Telecommunications Analyst | | 12 | 2 | 48,796 | 97,592 |
| Administrative Assistant | | 11 | 1 | 40,714 | 40,714 |
| Secretary | | 7 | 1 | 26,351 | 26,351 |
| Subtotal | | | 13 | | 854,295 |
| Less lapse | 0.0% | | 0 | | 0 |
| Total full-time permanent | | | 13 | | 854,295 |
| 2000 Pay Adjustment | 4.4% | | | | 37,589 |
| | | | | | 891,884 |

| Personnel Data | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 13 |
| Other than full-time permanent | 0 |
| Total | 13 |
| Authorized Positions: | |
| Full-time permanent | 13 |
| Other than full-time permanent | 0 |
| Total | 13 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Spectrum Management
Program change: Critical Infrastructure Protection (Lead Agency)

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 892 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| 11.9 | Total personnel compensation | 892 |
| 12.1 | Civilian personnel Benefits | 250 |
| 21 | Travel and transportation of persons | 300 |
| 22 | Transportation of things | 1 |
| 23.1 | Rental payments to GSA | 142 |
| 23.2 | Rental payments to others | 0 |
| 23.3 | Communications, utilities and misc charges | 44 |
| 24 | Printing and reproduction | 1 |
| 25.1 | Consulting Services | 725 |
| 25.2 | Other Services | 50 |
| 25.3 | Purchase of goods & services from Gov't accounts | 25 |
| 25.7 | Operation and maintenance of equipment | 10 |
| 26 | Supplies and materials | 10 |
| 31 | Equipment | 50 |
| **99** | **Total obligations** | 2,500 |

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Spectrum Management ..... | Pos./BA | 24 | $ 3,466 | 27 | $ 4,466 | 3 | $ 1,000 |
| | FTE/Obl. | 22 | $ 3,466 | 25 | $ 4,466 | 3 | $ 1,000 |

**Critical Infrastructure Protection, Information Sharing and Analysis Center (ISAC) (+3 FTEs, +$1,000).** The objective of this initiative is to facilitate the establishment of an ISAC for the Information and Communications sector as directed in Presidential Decision Directive (PDD) 63.

PDD-63, signed on May 22, 1998, directs that the Government shall "strongly encourage the creation of a private sector information and analysis center." The design and functions of such a center as well as its relationships with Government agencies and other sectors' ISACs are to be determined by the private sector in consultation with and assistance from the Government.

The PDD is not proscriptive concerning the functions, organization or operation of the ISAC. It anticipates, however, that the ISAC "…could serve as the mechanism for gathering, analyzing, appropriately sanitizing and disseminating private sector information to both industry and the NIPC" (National Infrastructure Protection Center in the FBI). It is also envisioned as the "mechanism for sharing important information about vulnerabilities, threats, intrusions and anomalies…"

While its ultimate design and operation are private sector prerogatives, the PDD envisions the possibility that the ISAC would have a "large degree of technical focus and expertise… establish baseline statistics and patterns…become a clearinghouse for information… and provide a library for historical data to be used by the private sector and, as deemed appropriate by the ISAC, by the Government."

OMB's guidance is that "… to the extent that NTIA experiences resistance within the telecommunications and information sector, to which NTIA has been assigned lead-agency responsibilities, to developing such an information sharing and analysis capability (e.g., due to resource constraints), we recommend that NTIA provide that degree of support necessary to stimulate such an effort, within the level of funds provided."

During FY 1999, the I&C sector coordinators (a select group of industry associations) and others will be considering a set of options for organizing and establishing an ISAC. We expect that by the beginning of FY 2000 the sector will have settled on one or a small set of viable options. The task in FY 2000 will be to stand up the ISAC, obtain broad acceptance within the sector, establish functions and lines of communication, and begin operations. Ultimately, the major segment of ISAC funding is expected to come from the sector. However, we will need to consider the possible requirement for continued support by the Government to address specific Government needs.

1. Government issues related to establishment of the ISAC. In this element, NTIA will facilitate the resolution of specific issues that may affect the operation of the ISAC. For example, we will solicit advisory opinions and guidance on: antitrust implications, non-application of Federal Advisory Committee Act, applicability of national security classification procedures, methods for protection of privacy, applicability of non-disclosure agreements, and mechanisms for assuring the security and anonymity of sensitive information.

2. Assistance in gaining broad acceptance within the sector. NTIA will assist the ISAC organization in the design, development, production and dissemination of informational materials such as brochures, pamphlets and videos; will host/participate in workshops, conferences and seminars; and will probe the sector to uncover problems in the design and functioning of the ISAC.

3. Establishing Lines of Communication. NTIA will undertake, with the ISAC organization, to establish effective lines of communication between the ISAC and federal agencies such as NIPC, the Intelligence Community, DOD, NCS/NSTAC, the I&C sector liaison and coordination officials; and other lead agencies under PDD 63. NTIA will also assist, as appropriate, in establishing lines of communication within the sector.

4. Operations. NTIA will assist the ISAC in establishing viable procedures to ensure the best flow and protection of important data/information. NTIA will assist in identifying, from the Government's perspective, key issues needing analysis and will assist in the development and transfer of appropriate analytic methodologies. NTIA will assist the ISAC in identifying resource needs and sources. NTIA will facilitate the acquisition by the ISAC of Government-originated information.

This initiative is expected to incur continuing costs at a reduced level once the ISAC is established and running as designed.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Spectrum Management
Program Change: Critical Infrastructure Protection, Information Sharing and Analysis Center (ISAC)

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Telecommunications Specialist | | 13 | 1 | 58,027 | 58,027 |
| Administrative Assistant | | 11 | 1 | 40,714 | 40,714 |
| Secretary | | 8 | 1 | 30,465 | 30,465 |
| Subtotal | | | 3 | | 129,206 |
| Less lapse | 0.0% | | 0 | | 0 |
| Total full-time permanent | | | 3 | | 129,206 |
| 2000 Pay Adjustment | 4.4% | | | | 5,685 |
| | | | | | 134,891 |

| Personnel Data | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 3 |
| Other than full-time permanent | 0 |
| Total | 3 |
| Authorized Positions: | |
| Full-time permanent | 3 |
| Other than full-time permanent | 0 |
| Total | 3 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Spectrum Management
Program change: Critical Infrastructure Protection, Information Sharing and Analysis Center (ISAC)

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 135 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| 11.9 | Total personnel compensation | 135 |
| 12.1 | Civilian personnel Benefits | 38 |
| 21 | Travel and transportation of persons | 100 |
| 22 | Transportation of things | 0 |
| 23.1 | Rental payments to GSA | 33 |
| 23.2 | Rental payments to others | 0 |
| 23.3 | Communications, utilities and misc charges | 11 |
| 24 | Printing and reproduction | 1 |
| 25.1 | Consulting Services | 575 |
| 25.2 | Other Services | 50 |
| 25.3 | Purchase of goods & services from Gov't accounts | 25 |
| 25.7 | Operation and maintenance of equipment | 2 |
| 26 | Supplies and materials | 5 |
| 31 | Equipment | 25 |
| **99** | **Total obligations** | 1,000 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
INCREASE FOR 2000
(Dollar amounts in thousands)

| | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|
| | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Spectrum Management.....Pos./BA | 24 | $3,466 | 24 | $ 3,666 | 0 | $200 |
| FTE/Obl. | 22 | $3,466 | 22 | $ 3,666 | 0 | $200 |

**Federal Government Spectrum Management Information Infrastructure (0 FTEs, $1,000 - Direct +0 FTEs, +$200; Reimbursable +0 FTEs, +$800).** The Department of Commerce is the manager of the spectrum allocated and used for Federal operations. In this role, NTIA must ensure that all Federal needs for spectrum are satisfied to ensure that the public is provided national security, safety (such as in air traffic control), protection (law enforcement), and other public services. NTIA must also ensure that the Federal Government uses the minimum amount of spectrum to do its job; which maximizes the spectrum available for the private sector to meet future national spectrum needs.

This initiative would enhance technological development and commercialization by improving the use of spectrum through increased sharing and spectrum efficiency. It would provide a much more rapid method for the Federal agencies to obtain spectrum to operate their radiocommunications. It would also provide a method for the radiocommunication manufacturers to ensure that their systems meet Federal spectrum standards and provide the Federal agencies a means to obtain technical information on radiocommunications for planning spectrum use in the future.

**INITIATIVE DESCRIPTION:** NTIA has had a very effective and efficient process for identifying and meeting the needs of Federal users for access to the spectrum. This process includes satisfying Federal requirements for specific day-to-day operating frequencies and to meet longer term changing needs. However, this process can be significantly improved. To this end, NTIA will design, test, and implement an advanced automated Federal spectrum management system to replace an aging, time-consuming, and costly process now in use. The automation will include an on-line spectrum certification capability wherein the private sector radiocommunication manufactures can get Government certification that their radios meet the standards contained in the NTIA Manual Regulations & Procedures for Federal Radio Frequency Management. The result will be largely

paperless management, decision making, and information exchange processes combined with more responsive and efficient processes for authorizing Federal frequency use. NTIA spectrum management will be able to meet the increasing Federal demands for wireless communication systems and services, including rapidly expanding public safety related needs, within the reduced spectrum resources available by incorporating state-of-the-art information processing, technical analysis, and communications technologies.

**Current Procedures:** NTIA spectrum management involves three closely linked processes. The first, Federal radiocommunication policy development, relies heavily upon the advice of the Federal spectrum user community via the 20-member Interdepartment Radio Advisory Committee (IRAC). The more than 200 meetings of the IRAC and its subcommittees each year involve the exchange, reproduction, and distribution of over 100,000 pages of documents. Physical copies of all current documents are maintained and archived annually on microfilm. This paper process is costly, time-consuming, and difficult to use, but must continue until replaced in the FY 2001-2003 time frame through this initiative. In the second process, spectrum planning, NTIA certifies spectrum availability for approximately 100 major, new Federal radiocommunication systems costing annually over $2 billion, using document-based information processing techniques. In the third process, frequency assignment, NTIA processes approximately 8,000 to 10,000 frequency assignment actions monthly. Each new station must be coordinated with many others already authorized by NTIA and, in shared bands, with the Federal Communications Commission to avoid harmful interference between stations. Furthermore, the constant growth in numbers of stations authorized by NTIA (doubled since 1980) is increasing both the complexity of and time requirements for coordination. Currently there is no method for private sector radiocommunication manufacturers to determine whether their radios meet the standards contained in the NTIA manual; nor, is there a central location where the Federal agencies can obtain information on radiocommunications that could meet their communication needs and would conform to NTIA standards.

Information processing requirements are now being met by a mainframe computer, developmental work stations and a host of personal computers. The mainframe computer system uses procedures and processes developed over 30 years ago, and, even with continuous process improvement efforts, is itself severely outdated and cannot support state-of-the-art client/server database techniques needed to provide Federal agencies with on-line access to spectrum management data. There is a need to provide modern state-of-the-art data processing, telecommunications, and management tools to the Federal spectrum management community that embody many of the advantages and features of the evolving National Information Infrastructure.

The computerized tools and information infrastructure that are to be developed in FY 2000 will significantly reduce the time it takes to satisfy Federal radiocommunication requirements. Paperless distribution of documents will allow more rapid review of proposals and development of policies and will eliminate many costly coordination meetings now required for routine matters. Standardized programs for preparation, review and submission of requests for system review and frequency assignment will eliminate most submission errors, since each submitting agency will be able to access NTIA screening programs.

**Current Modernization Efforts:** In FY 1994, NTIA began a multi-year effort to modernize its information processing resources. The first phase was the development of a capability for automated frequency selection and preparation of frequency authorization planning and usage requests on PC's, the Joint Automated Spectrum Management System (JSMS). JSMS automated many of the existing frequency assignment and planning processes at the agency level and below. JSMS was completed in FY 1996 and provided to the Federal agencies. Also in FY 1997, the Annapolis

engineering and computer operations was relocated to the Commerce Department, Washington, D.C. office. As part of this relocation, the mainframe computer and associated software is being replaced with more efficient work station computers and associated software. The process is expected to be completed in June 1999 but will only satisfy the current frequency assignment and engineering processes. Work will continue through FY 1999 on the JSMS to include new capabilities that will make use of the spectrum more efficient. Monthly training classes have been provided to the Federal agencies on the use of JSMS. In FY 1998, NTIA awarded a contract to convert all prior paper documentation (some 40 years worth) associated with the administration of the IRAC to an electronic media, CD-ROM. This will enable any user to obtain via a search engine any spectrum information in the past 40 years. This is almost impossible at the present time. This will enable rapid access to historical information and application of such information to present and future spectrum issues and problems. In FYs 1998 and 1999, NTIA will be experimenting with the follow-on to JSMS, Spectrum XXI, in cooperation with Department of Defense's Joint Spectrum Center, which will provide a potential client/server approach to spectrum management. This type of approach could provide a direct connection between the Federal agency applicant for spectrum and NTIA, the Federal spectrum authorizer, from anywhere in the world. Using this capability, the Federal agency requestor could obtain almost instantaneous frequency assignments as compared to a minimum of 15 days or longer depending on compliance with NTIA rules and regulations and potential interference issues.

The second phase of the modernization effort, the Federal Government Spectrum Management Information Infrastructure initiative that begins in FY 2000, is to develop the specifications for the necessary communications, computer and electronic processing capabilities to provide a secure, two-way communications highway from NTIA to the IRAC representatives based on the experimentation in phase one above as associated with the server/client approach and new communication security technology. This effort will define the capability required, select an architecture that will satisfy the defined capability, and define the necessary communications, hardware, software and associated integration based on the architecture chosen. A time phased implementation schedule and cost estimates will also be provided in this phase for both the Federal agencies and NTIA. NTIA will also develop plans to build the necessary software that will enable the private sector to access via Internet the NTIA web site wherein they can provide technical characteristics of their radio systems and be provided feedback as to whether their system passes the NTIA standards. This data base of information from the private sector will then be available to the Federal agencies for their use in identifying radiocommunications equipments that have passed NTIA standards tests.

FY 2001 funds will be required for the third phase of the modernization effort which will continue through FY 2003. In the third phase, NTIA will implement the results of the FY 2000 initiative by contracting for the procurement of the necessary communications and system hardware and software; the acceptance testing of the system; the training of Federal users; and turning the system over to NTIA for continued maintenance and operational use. This system will replace the existing NTIA spectrum management system and related automated processes. NTIA will also implement plans to bring on-line the private sector certification capability and make it operational in FY 2001.

The information infrastructure system will be completed in FY 2003 and the total cost is estimated to be $4.9 million. The fourth phase, FY 2004 and beyond, will include the information infrastructure operation, maintenance, upgrades and any other integration. This new Infrastructure will be the cornerstone of NTIA's efforts to more efficiently and effectively manage the Federal Government's use of the spectrum so that foreseeable radiocommunications requirements of the Federal agencies can be satisfied and more spectrum can be shared with non-Federal users of the spectrum.

**NEED FOR THE INITIATIVE**: This initiative will ultimately benefit society by making the spectrum management process more efficient and effective by providing the tools and processes for Federal Government agencies to use the National Information Infrastructure to submit error-free requests for access to the radio frequency spectrum and to coordinate interagency policy advice with fewer meetings and limited exchange of documents. This will allow existing Federal spectrum management staff to support the rapidly expanding requirements of the government for radiocommunications for the future without increasing FTE resources through automation. Moreover, the use of standardized processes for assessing interference potential between stations will lead to increased efficiency and effectiveness in the use of the spectrum. The initiative will also provide the radiocommunication manufacturers the capability to determine whether their radios meet Federal spectrum standards and at the same time provide the Federal agencies with their equipment technical characteristics for use in the agency's spectrum planning activities. Presently, there is no standard centralized method to perform these activities.

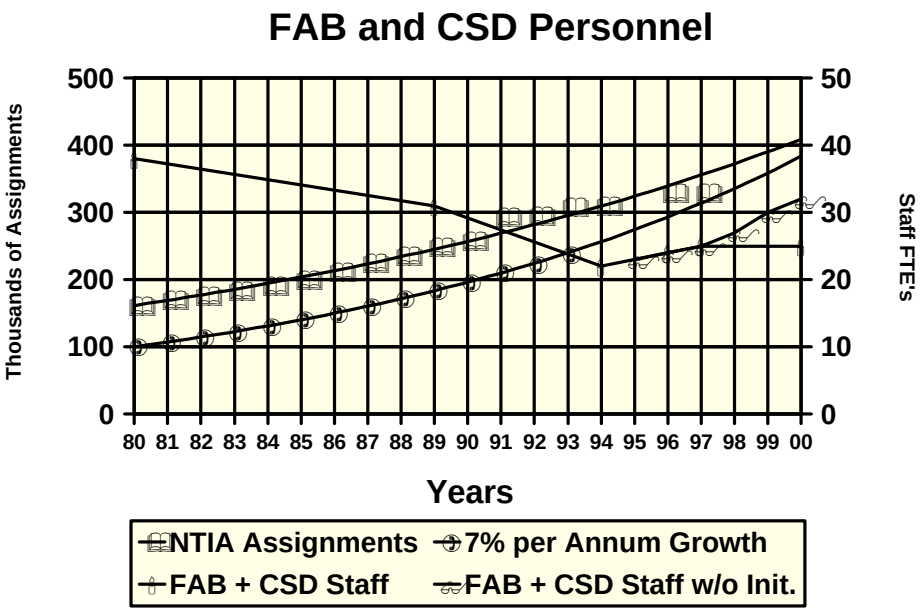
**FY 2000 and OUTYEAR RESOURCES** (FTE/$ in Thousands):

| | FY 2000 | FY 2001 | FY 2002 | FY 2003 |
|---|---|---|---|---|
| I. Personnel Costs | 0 | 0 | 0 | 0 |
| II. Contracts | | | | |
| a. JSMS | 200 | 100 | 100 | 100 |
| b. Information Infrastructure | | | | |
| (1) Capability Definition, architecture Selection, and System Definition | 300 | | | |
| (2) System Acquisition & Deployment: | | | | |
| Software | 300 | 1200 | 400 | |
| Hardware | 100 | 500 | 600 | |
| Integration | | 90 | 10 | |
| (3) Ops, Maint, Integration & Upgrades | | | | 500 |
| (4) IRAC Documentation Automation & Radio Certification | 100 | 100 | 100 | 100 |
| Direct Funds | 200 | 398 | 242 | 140 |
| Reimbursable Funds | 800 | 1,592 | 968 | 560 |
| Total Funds | 1,000 | 1,990 | 1,210 | 700 |

**PERFORMANCE MEASURES**:

OUTPUTS:

A communications/computer network by which the Federal agencies can request and obtain authorization to use the radio spectrum, obtain the latest frequency authorizations approved by NTIA for any location in the United States. Can determine interference, can perform automated checks to determine compliance with NTIA spectrum management rules and regulations, can determine the status of any frequency assignment actions, and can provide their comments and approvals on any other agency's request for frequency assignment action.




A mobile desktop computer spectrum management capability for NTIA and agency use in requesting spectrum authorizations, performing interference analysis, performing compliance with NTIA spectrum management rules and regulations, and for preparing spectrum certification requests for new radiocommunication systems.

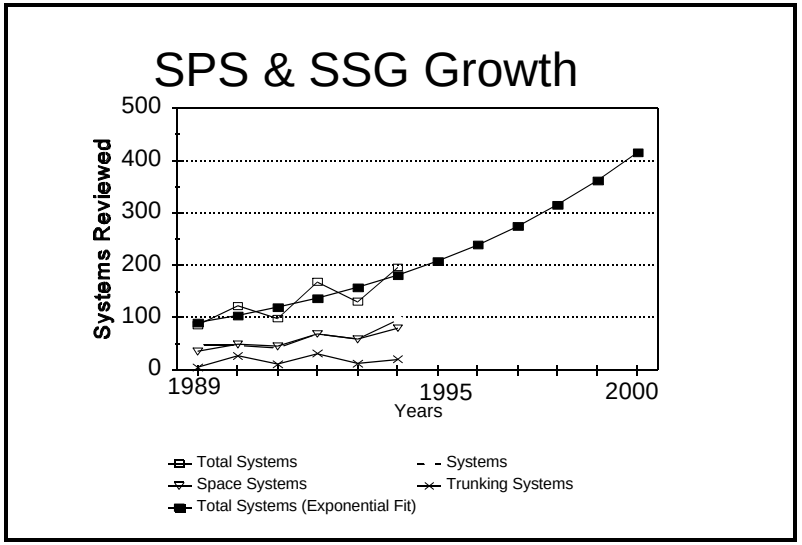
OUTCOMES:

1. The outputs are the result of significant improvements to the Federal spectrum management processes through the use of the latest computer and data processing technologies and will avoid and reduce costs and increase effectiveness as follows:

NTIA and the decrease that has taken place in the number of staff

members involved in processing frequency assignment requests, data output products for Federal agency use, and maintaining and operating the mainframe computer used for frequency assignment. The vertical axis shows the number of assignments entered into the Government Master File each year from 1980 to 1997. As can be seen by comparison between the NTIA Assignment curve with its diamond data points and the 7% per annum growth curve, the number of assignments is increasing at a rate greater than 7%, even before the 100,000 Canadian assignments in the border coordination zone were added. Meanwhile, the FTEs devoted to the process have decreased from about 38 in 1980 to 21 in the FY 1999 President's Budget.

At the same time the number of assignments has almost tripled, this marked decrease in staff has been the result of NTIA's continuous process review and improvement. However, we believe that the current infrastructure can only be improved further by incorporating state-of-the-art telecommunications technology and modern client/server data base technologies. If the initiative is not funded, we believe that the number of staff FTEs devoted to the process will have to increase to possibly 31 by 2000. With the initiative, we believe that the staffing could stabilize at around 25 FTEs while still handling the increasing work load and maintenance demands of a higher technology client/server based spectrum management system.




b. The adjacent box illustrates the growth in the Systems Review via the Spectrum Planning Subcommittee (SPS) process and Space Systems Reviews via the Space System (SSG) Group process since 1989. During this period, the number of employees devoted to the processes have remained essentially the same. In addition, the workload has also expanded to include analysis tasks in support of NTIA's openness program, efforts to foster commercially owned Government specialized mobile radio (SMR) systems, and coordination of government satellite systems in the International Telecommunication Union (ITU) arena. The latter point has taken on new importance due to more competition in the geostationary orbit and in the frequency bands used by government space systems. In addition, initiatives taken in response to the NTIA Organization Act could incorporate all land mobile systems in the system review process. The ability of the NTIA staff to handle the expanding workload over the last several years has been due to the development of a number of stand-alone automated tools for systems reviewing. The development of standardized processes and analytical tools for use by Federal agencies and NTIA will allow the current staff to continue to meet the needs of the Government.

2. This network and portable desktop capabilities will also permit NTIA and the Federal agencies to maximize the efficiency with which they manage and use the spectrum. The processes will permit each agency to perform detailed technical analyses to determine how to satisfy each telecommunication requirement and to consider a much wider variety of spectrum available to meet their requirements. Since agencies will have broader access they will no longer need to reserve frequencies for contingent use. This will permit more closely packed assignments and increased sharing with other users of the spectrum.

3. These capabilities will: (a) enable NTIA to make sure that all frequency authorizations conform to spectrum standards and comply with NTIA guidance provided during system development, neither of which is being accomplished effectively at this time; (b) increase efficiency in Federal use of the radio spectrum through increasing the average number of users per authorized frequency; (c) increase probability that frequencies will continue to be available for Federal operations by conserving the spectrum; (d) increase efficiency and effectiveness of coordination between NTIA, the Federal spectrum users, the FCC and non-Federal spectrum users, by using electronic means of information transfer; (e) decrease processing time and submission errors by using government-wide standard techniques and processes; (f) reduce or eliminate paper transactions; (g) increase linkages between all spectrum management processes by developing, and implementing an automated processing, standardized definitions of terms and algorithms.

**COST ANALYSIS:**

(1) Cost Avoidance over 5 Years:

| | Million | FTE's$ in |
|---|---|---|
| (a) The increase in FTE's to sustain the increase in processing Government spectrum requirements (shown in (1) & (2) above). | 6 | .6 |
| (b) Perform regulatory functions not currently possible due to the lack of automation capability. These include standards compliance, interference analysis, and minimum spectrum space analysis. | 6 | .6 |
| (c) Agency increase in coordination necessary to meet growth of frequency assignment actions as a result of agency growth in radiocommunications. | 20 | 2.0 |
| (d) Analysis of potential private sector use or sharing government spectrum. | 5 | .5 |
| Total Avoidance Costs Anticipated: | 37 | 3.7 |

(2) Cost Reduction over 5 Years:

| | | |
|---|---|---|
| (a) Decrease in assignment & IRAC paper process costs including mailing agendas, copying, and documentation storage. | 4 | .4 |
| (b) Decrease in time for agencies to coordinate spectrum usage due to use of standard, uniform, and centralized computerized capability. | 10 | 1.0 |

| | | |
|---|---|---|
| Total Cost Reduction Costs Anticipated: | 14 | 1.4 |

Therefore, based on the above over a five year period, the benefits ($5.1 million), cost avoidance and reductions, of this initiative outweigh the costs ($4.9 million) of the initiative by $0.2 million.

**OTHER AGENCY INVOLVEMENT:** NTIA has been working with the Department of Defense's (DOD) Joint Spectrum Center (JSC) since FY 1994 to develop the JSMS and future requirements of the information infrastructure. DOD has, and will continue to have, global spectrum management and communication requirements. NTIA and JSC have an on-going memorandum of understanding (MOU) which will prevent duplication of effort and the basis for a more uniform cost effective approach to automating spectrum management that will satisfy all Federal agency requirements.

The Federal agencies will also be involved in the infrastructure development and implementation as a result of their participation in the IRAC. The Federal agencies will continue to be a partner in financing this initiative since Congress requires the user Federal agencies to reimburse NTIA for 80 percent of the cost of spectrum management operations.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Spectrum Management
Program change: Federal Government Spectrum Management Information Infrastructure

| Object Class | Direct Appropriation | Reimbursable Authority | Total 2000 Increase |
|---|---|---|---|
| 11 Personnel compensation | | | |
| 11.1 Full-time permanent | 0 | 0 | 0 |
| 11.3 Other than full-time permanent | | | |
| 11.5 Other personnel compensation | | | |
| 11.9 Total personnel compensation | 0 | 0 | 0 |
| 12.1 Civilian personnel Benefits | 0 | 0 | 0 |
| 21 Travel and transportation of persons | 0 | 0 | 0 |
| 22 Transportation of things | 0 | 0 | 0 |
| 23.1 Rental payments to GSA | 0 | 0 | 0 |
| 23.2 Rental payments to others | 0 | 0 | 0 |
| 23.3 Communications, utilities and misc charges | 0 | 0 | 0 |
| 24 Printing and reproduction | 0 | 0 | 0 |
| 25.1 Consulting Services | 0 | 0 | 0 |
| 25.2 Other Services | 0 | 0 | 0 |
| 25.3 Purchase of goods & services from Gov't accounts | 200 | 800 | 1,000 |
| 25.7 Operation and maintenance of equipment | 0 | 0 | 0 |
| 26 Supplies and materials | 0 | 0 | 0 |
| 31 Equipment | 0 | 0 | 0 |
| **99 Total obligations** | 200 | 800 | 1,000 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Telecommunication Sciences Research

| Line Item | | 1998 Actual | | 1999 Currently Available | | 2000 Base | | 2000 Estimate | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| **Telecommunication Sciences Research** | Pos./BA | 32 | 3,454 | 37 | 3,532 | 37 | 3,691 | 62 | 5,694 | 25 | 2,003 |
| | FTE/Obl. | 32 | 3,453 | 37 | 3,533 | 37 | 3,691 | 56 | 5,694 | 19 | 2,003 |

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**Justification of Program and Performance**

**Activity: Telecommunication Sciences Research**

**Goal Statement**

Through telecommunication research and engineering, NTIA supports Administration telecommunication goals such as enhanced domestic competition, improved foreign trade opportunities for U.S. telecommunication firms, and more efficient use of the radio frequency spectrum. Specifically, the goals of the Telecommunication Sciences Research activity are to:

- Continue applied engineering and measurement work that is essential to support the mandates of NTIA and the FCC to effectively manage the Federal and non-Federal use of the radio frequency spectrum to enable efficient introduction and implementation of new wireless technologies, public safety communications, advanced broadcasting, and satellite communications.

- Provide technical advice to support the mandate of NTIA to develop and promulgate Executive Branch policies addressing domestic and international telecommunications and information issues.

- Organize and coordinate preparations for U.S. participation in international telecommunications conferences and negotiations in cooperation with other interested agencies and industry groups.

- Develop and present public interest and user-oriented technical contributions to national and international standards organizations addressing topics critical to the development and implementation of the National Information Infrastructure (NII) and Global Information Infrastructure (GII).

- Accomplish research and engineering to promote technology advancement and the efficient delivery of public services, enabling private industry, other Federal agencies, and State and local governments to meet their specific telecommunications needs.

- Promote timely, effective application of NTIA's research and engineering results through technology transfer and commercialization activities.

**Proposed Legislation**

Draft legislation to authorize appropriations for the continuation of this program for FY 2000 will be prepared.

**Base Program**

**Explanation and Justification**

Through the Telecommunication Sciences Research activity, NTIA performs state-of-the-art telecommunication research and engineering to further the knowledge of the radio frequency spectrum and to improve wireless telecommunications system planning, design, and evaluation. These efforts directly support industry and Government needs, and directly respond to the requirements of NTIA and the FCC to manage the Federal and non-Federal use of the radio spectrum. NTIA research in this area addresses national needs of such broad application that they are beyond the abilities and/or economic incentives of other government agencies and private industry. This technical research is directed toward improving the understanding of radio-wave transmission and wireless communications to enhance spectrum utilization and the performance of advanced wireless systems. Important results of this research are spectrum use concepts and models that lead to more efficient industry and Government use of the radio frequency spectrum, and electromagnetic wave propagation models and signal processing methods that lead to improvement in radio system performance. This knowledge base is essential to support the Government's spectrum management responsibilities and for technical support to other Federal agencies and industry. These research and engineering efforts will result in an improved U.S. telecommunications technology base and a strong technical foundation for telecommunication standards development in national and international arenas.

As a result of these activities, NTIA has established a core telecommunications research expertise that is accessible to both the public and private sectors. Through cooperative research and development agreements (CRADAs) with industry and reimbursable agreements with other Federal agencies, NTIA applies its expertise to practical problems in telecommunications today. For example, both the private sector and other government agencies have access to NTIA's advanced propagation models (that simulate the radio environment) through direct access, at cost, to an on-line service that provides the opportunity to apply the latest models to specific problems. The combination of direct-funded NTIA efforts and other agency-sponsored work operates in a synergistic manner, leading to greater contributions to national needs and the spectrum management role of the government.

In support of NTIA's mandate to oversee the usage of the radio spectrum by Federal agencies, NTIA maintains a mobile capability to measure the use of the spectrum. NTIA utilizes a Radio Spectrum Measurement System (RSMS) van, which is equipped with sophisticated electronic

instrumentation, to monitor signals between 10 KHz and 20 GHz. NTIA utilizes this system to perform measurements in the land and marine mobile bands and radar bands at selected sites, and to make other specialized measurements as necessary to ensure compliance with frequency assignment rules and regulations. NTIA efforts are directed toward the measurement of spectrum usage in these selected bands and summarizing the results in support of specific IRAC concerns. In addition, the RSMS is used to resolve difficult interference problems where a Government system is thought to be involved. This activity often saves costs to Federal agencies and the private sector that far exceed the funding for the Spectrum Research and Analysis Subactivity. The RSMS is also available for other agency applications on a reimbursable basis. NTIA will also be assisting various Department of Defense agencies and the FAA to efficiently operate their own radio spectrum measurement programs through technical consultations, and modification, design and construction of new radio spectrum measurement systems. This work is based heavily on expertise developed for the RSMS, but it also provides an important means of investigating the use of advanced measurement hardware and software for the RSMS itself. As new wireless technologies emerge, NTIA must increase efforts in FY 2000, to develop improved software and measurement techniques to support increasingly sophisticated uses of the spectrum, including spread-spectrum and frequency agile systems.

Spectrum engineering analyses are performed as required in order to assess current and future Federal use of the spectrum and determine where significant improvements in utilization appear possible. Currently, the future spectrum requirements for public safety and law enforcement are being analyzed under the auspices of the Public Safety Wireless Advisory Committee and the Federal Law Enforcement Wireless Users Group. Also, the Federal Government's use of its spectrum is being evaluated to determine if the application of marketplace factors would result in more efficient and economic use. In FY 2000, activities will continue to support essential spectrum utilization analyses ongoing at NTIA, including the impact of new broadband technologies. Technical support will be continued on major frequency management concerns through representation at technical subcommittee (IRAC) meetings with principal emphasis on improving Federal spectrum use efficiency.

The trend in the world is towards providing diverse services, such as audio, video, data, broadcasting, and common carrier services through an integrated system of wireline and wireless networks. Radio has an important role in portable and mobile communications, and will play an increasingly important role for connecting the end user to the information infrastructure, and for providing a variety of personal communication services. Another trend becoming evident as technology advances is that of radio systems utilizing higher frequencies. In fact, many radio systems are already moving into the millimeter-wave band, which is located at the upper end of the allocated radio spectrum (30-300 GHz). Reallocating existing users of lower bands to these higher frequency ranges will help ease the congestion as well as provide for additional frequency availability. NTIA is a key source of information characterizing radio propagation in support of spectrum policy and management as well as the development and deployment of new technologies such as third generation wireless, wireless local loop, and millimeter-wave systems.

NTIA continues to provide support to the development and deployment of various wireless technologies such as Personal Communication Services (PCS), third generation wireless, and Local Multipoint Distribution Services (LMDS). Knowledge from measurements and modeling of advanced antenna technologies, e.g., adaptive antennas, and the propagation of radio waves on short paths in man-made environments, are crucial for the planning, development, and deployment of commercially viable systems. NTIA is operating an advanced antenna testbed for evaluation and

comparison of the performance and spectral efficiency of adaptive antennas. NTIA continues to support private industry in their wireless technology development efforts through technology transfer under CRADAs. Under CRADAs with US West Advanced Technologies, and Lucent Bell Labs, NTIA is contributing to the development of advanced antenna technology. In a CRADA with Lehman Chambers, NTIA is assisting in the design of facilities for certification testing of electronic products for exportation to Europe. These technology transfer activities will continue into FY 1999 and FY 2000.

The NTIA Broadband Radio program supports the development of broadband wireless technology such as wireless local area networks through models and measurements that enable the accurate prediction of broadband communication system performance in various radio environments. These models serve as a basis for system planning and design as well as spectrum regulation. To this end, NTIA studies are directed towards a better understanding of the behavior of broadband radio waves in indoor and outdoor environments. A second objective is to demonstrate the viability of various broadband radio systems including millimeter wave systems with the development of models and radio link simulators to analyze the effects of the radio channel on end-to-end system performance. These demonstrations elucidate, in a convincing manner, the possible effective uses of millimeter waves for telecommunications and so accelerate commercial development.

Under other agency agreements, NTIA is providing telecommunications planning assistance to a variety of Federal agencies. NTIA has completed a national plan, approved by the Secretary of Transportation, for augmented Global Positioning System (GPS) to meet the navigational and positional needs of all modes of surface transportation. NTIA has developed a national deployment plan for the ground based system. NTIA is also providing support to the Federal Highway Administration in the development of Intelligent Transportation Systems (ITS). NTIA provides compatibility testing of dedicated short range communication systems with existing government radars. NTIA leads of the IEEE Vehicular Radar Standards subcommittee in developing collision avoidance radar standards for the Nation's highways. Electromagnetic compatibility testing and analyses of applications will be continued in FY's 1999 and 2000.

The demand for new and expanding telecommunication systems such as advanced television (ATV), wireless voice and data, and radio navigation systems has placed increased burdens on spectrum planners and policy makers. To address this situation, NTIA develops fundamental data and more accurate modeling of radio propagation that will lead to improved methods of planning spectrum sharing among the various users. Many systems of today, and especially those in the near future, will transmit signals using wide frequency bandwidths that are necessary for the large amounts of information being sent. Many new systems are using digital modulation. Adaptive antennas will be used in the future to increase capacity. Predicting how these systems can share the same spectrum space requires a better understanding of broadband radio propagation and the use of multi-dimensional modeling techniques. NTIA provided analysis tools and techniques used in the allocation of channels for advanced television systems, and a technical analysis of has ATV broadcasting options. NTIA and FCC engineering personnel have jointly developed the signal coverage and interference analysis programs to evaluate the ATV Allotment Table for over 1,600 broadcast TV stations. NTIA made spectrum management tools available to assist the private sector in the planning and deployment of ATV systems. In FY 2000, research activities will be directed toward improving how analog channels will be made available for other applications.

NTIA, in cooperation with U.S. industry, prepares and coordinates proposed domestic and international telecommunications standards, develops and demonstrates technologies for assessing the performance and optimizing the utilization of public and private telecommunication networks from a user perspective, and evaluates emerging technologies for application to future needs. These activities promote international trade opportunities for U.S. telecommunication firms, enhance competition in the U.S. telecommunications industry, and improve the cost effectiveness of Government telecommunications use.

In its international standards activity, NTIA is working to expand trade opportunities for U.S. telecommunications and information providers by leading and supporting U.S. participation in key technical negotiations of the International Telecommunication Union's Telecommunication Standardization Sector (ITU-T) and Radiocommunication Sector (ITU-R). ITU telecommunication standards and radiocommunication recommendations serve as blueprints for future technology development involving billions of dollars in telecommunications industry investment worldwide. NTIA activities strengthen U.S. participation in ITU negotiations and provide the technical content for international standards and recommendations in areas where unique Government interests and NTIA expertise exist.

Integrated broadband networks employing Synchronous Optical Network /Synchronous Digital Hierarchy (SONET/SDH), Asynchronous Transfer Mode (ATM), and Intelligent Network (IN) technologies will provide integrated data, voice, video, and multimedia communication services to subscribers on a world-wide basis, and will enable the development of a National Information Infrastructure (NII) and Global Information Infrastructure (GII) supporting electronic commerce, education, health care, and other commercial and public service applications. NTIA currently leads the U.S. ITU-T Study Group responsible for coordinating U.S. contributions to the international standards committees in which these and other NII/GII enabling technologies are specified, and serves on the State Department's International Telecommunications Advisory Committee (ITAC), which coordinates overall U.S. participation in ITU-T activities. NTIA also leads the international Working Party responsible for SONET/SDH, ATM and GII/Internet performance standards development within ITU-T Study Group 13 (General Network Aspects), and spearheads related multimedia communications quality of service work in Study Group 12 (End-to-end Transmission Performance of Networks and Terminals). These activities will play a key role in economical realization of the GII. NTIA will continue these important leadership activities, and will conduct focused research supporting the development, demonstration, and implementation of broadband network and GII/Internet performance standards promoting U.S. domestic competition and international trade objectives. NTIA will continue to broaden and strengthen U.S. industry participation in international standards development through seminars and workshops, conference presentations, and technical publications. These outreach activities are particularly beneficial to smaller U.S. telecommunications firms that might otherwise be unable to contribute to ITU activities.

NTIA's international standards activities are complemented by active involvement in the development of U.S. standards for broadband networks and GII/Internet within the American National Standards Institute (ANSI)-accredited T1 (Telecommunications) Standards Committee. NTIA chairs Subcommittee T1A1, which is responsible for developing performance and signal processing (e.g., coding) standards for U.S. broadband digital networks. NTIA also contributes to Subcommittee T1S1, which is responsible for the development of U.S. standards for services, switching and

signaling in emerging broadband networks, and to selected T1A1 working groups, which are responsible for developing performance and coding standards for advanced digital audio (including voice) and video communication systems. NTIA contributions to these national standards committees provide technical solutions to some of the most compelling issues facing U.S. telecommunications planners, and thereby help to more rapidly evolve the NII and GII. Examples include the interoperation of multi-vendor systems employing various transmission media (cable, microwave, fiber, satellite) in a competitive environment, and key ATM network planning issues including traffic management and economical resource sharing among integrated services. NTIA results promote industry competition and innovation in the provision of integrated broadband digital services and facilitate efficient matching of such services with user needs. NTIA will continue to lead and coordinate standards development in key U.S. telecommunications industry forums to ensure that emerging U.S. broadband network and NII standards are consistent with market competition, with Internet evolution and the Administration's GII objectives, and with applicable Government (e.g., OMB, FCC) policy guidelines.

NTIA's international and U.S. standards committee leadership is supported by telecommunications research and engineering activities directed toward the development, implementation, and promulgation of user-oriented performance measures for integrated data, audio (including voice), video, and multimedia communication equipment and services. NTIA will continue to apply its unique expertise and state-of-the-art ATM network performance measurement laboratory in validating and optimizing telecommunication performance standards. This research is leading U.S. industry and the world in the development of user-oriented, technology-independent performance parameters and measurement methods for high-speed data communication services. In FY 2000, NTIA will continue related research in multimedia communication performance supporting such emerging and future applications as video telephony and teleconferencing, distance education, interactive video distribution, and advanced television. In prior work, NTIA has developed, patented, and standardized objective, perception-based, technology-independent quality metrics for audio and video communication services. In FY 2000, NTIA will demonstrate integration of the audio and video metrics to provide perception-based objective measures of the overall quality of multimedia services. NTIA will optimize these measures for correlation with subjective listener/viewer perceptions in the NTIA Multimedia Subjective Test Facility and will demonstrate their successful use in practical measurements of multimedia communications via the Internet or other GII facilities. NTIA will propose the integrated metrics for national and international standardization. NTIA will continue to leverage its integrated multimedia communication performance studies through cooperative programs with other Federal agencies and private industry organizations.

NTIA is also involved in the development of Federal and industry standards under other agency Reimbursable Agreements. This work includes development of Federal telecommunications specifications and standards, proof of concept and demonstration measurements, interoperability analyses, and technical and economic impact assessments. Technology advances advocated by NTIA in domestic and international standards fora are typically also of value in Federal applications. Thus, there is much synergy between the two activities as NTIA works to promote the overarching goals of industry competition, rapid technology advancement, and improved services to Federal and industry users.

NTIA continues an important research effort aimed at promoting effective integration of advanced satellite systems with terrestrial systems in future broadband digital networks supporting NII/GII services. The significant promise of satellites in the NII/GII is their capability to provide ubiquitous (anywhere, anytime) connectivity to personal (handheld) terminals. However, satellite system integration with terrestrial wireless and fixed high-bandwidth networks involves complex trade-offs among a number of interrelated technology attributes and variables, including quality of service, traffic management and congestion control, routing, protection switching, signaling, and security. Multimedia applications such as teleconferencing are particularly demanding and will be a particular focus of NTIA's FY 2000 measurements and studies. These studies will provide a basis for the development of industry and international standards on performance and interoperability of satellite and hybrid satellite/terrestrial networks. NTIA activities will include technical contributions to Telecommunications Industry Association (TIA) Engineering Committee TR-34 (Satellite Equipment and Systems), addressing quality of service and network interoperability for multimedia applications that use ATM over satellites. NTIA will also provide technical contributions to ITU-R SG4 and associated international conferences to complete ITU-R Recommendations for the performance and availability of B-ISDN services using ATM over satellites. These contributions will be based both on analytical work and on collaborative experiments conducted in cooperation with industry, NASA, or other organizations involved with TIA and/or ITU standards development. Results will be disseminated in technical reports and open literature publications in addition to contributions to U.S. industry and international standards committees. Benefits will include enhanced efficiency and reliability in national and global information infrastructures and continued strength in the U.S. satellite communications industry.

NTIA will also continue its ongoing program in Wireless Networking in FY 2000. A number of emerging wireless technologies, such as advanced personal communication services (PCS), offer prospects for providing users ubiquitous and tetherless access to voice, data, and image communications--and a variety of advanced service features--using small, inexpensive, lightweight, low-powered portable radio terminals. Wireless technologies can extend wired information infrastructures to mobile, rural, and other underserved users and can dramatically improve telecommunication service availability in natural disaster and other emergency situations. However, achieving these benefits will require solutions to major implementation problems. As wireless networks and applications expand, interference among users sharing spectrum is likely. Users and service providers hoping to develop advanced wireless networks are faced with an over-abundance of candidate technologies, most of which are non-interoperable. NTIA is addressing these problems by providing objective, expert technical contributions in support of public interest concerns in national and international committees responsible for resolving wireless network implementation issues. A particular focus of NTIA activity is the development of intra-system and inter-system interference assessment metrics and standards in TIA Engineering Committee TR-46 (Mobile and Personal Communications). Results promote efficient use of increasingly scarce (and expensive) radio spectrum and improve wireless system coverage and performance.

**Statement of Operating Objectives**

FY 2000 operating objectives for the Telecommunication Sciences Research activity are summarized by program area below.

Radio Spectrum Measurement System: Provide measurements of environmental radio signals assessing levels and types of spectrum occupancy, and resolving selected spectrum management problems.

Spectrum Engineering Analysis: Complete one spectrum engineering analysis. For example, alternatives for a shared public safety wireless network nationwide or other critical system engineering topics will be addressed.

Personal Communication Services: Provide propagation based analysis and planning tools for use by Government and others in the planning, procurement, requirements specification, and deployment of advanced spectrally efficient antennas for personal communication services (PCS) and other wireless services.

Broadband Radio: Study and characterize the broadband transmission channel for within-building wireless local area networks.

Private Land Mobile Radio Service Analysis: Provide analysis methods to evaluate new wireless communication systems to be used by Public Safety, Public Service, Land Transportation agencies.

International Standards: In cooperation with the U.S. ITU-T National Committee, continue leadership of U.S. Delegations and international committees in ITU-T Study Groups developing technical standards of importance to U.S. industry and Government planners (e.g., ATM, advanced signaling, intelligent networks, personal communications) in support of the GII. Submit new and enhanced ITU-T Recommendations on broadband network performance (e.g., ATM, GII) and multimedia quality of service (e.g., video telephony, video conferencing) to ITU-T and coordinate their formal review and approval. Prepare and submit new and revised technical information to ITU-R Recommendations on the performance and availability of multimedia services using ATM over satellites.

Domestic Standards: In support of public interest concerns, provide strong leadership and continued technical support to Telecommunications Standards Committee T1. Prepare and coordinate proposed U.S. contributions to ITU-T and ITU-R committees developing new recommendations impacting U.S. telecommunications policy and trade objectives. In cooperation with other T1 participants, develop proposed American National Standards defining broadband network performance and multimedia quality of service measures consistent with those specified in related ITU Recommendations. Prepare and submit technical contributions to TIA standards that define the wireless network interface for satellites providing Internet and ATM-based communication services.

Performance Assessment: Demonstrate successful application of NTIA-developed, perception-based video and audio (e.g., voice) quality of service measures in prototype multimedia test equipment. In cooperation with industry collaborators, complete subjective viewer/listener tests to demonstrate and optimize perception-based quality measures for combined video and audio communication services. Document key results in open literature publications and in patent applications as appropriate.

Advanced Satellites: In cooperation with U.S. industry and other Government participants, define technical requirements for quality-of-service, interoperability and security standards required to effectively integrate broadband terrestrial and satellite-based ATM networks supporting NII/GII/Internet applications.

Wireless Networks: Perform interoperability and quality assessments of representative wireless network technologies. Spearhead standards committee activities and provide engineering analysis and simulation results defining quantitative limits for adjacent and co-frequency block interference within and among standardized PCS technologies.

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Telecommunication Sciences Research…… | Pos./BA | 37 | $ 3,691 | 44 | $4,494 | 7 | $803 |
| | FTE/Obl. | 37 | $ 3,691 | 42 | $4,494 | 5 | $803 |

**Critical Infrastructure Protection - Research (+5 FTEs, +$803)**. Advances in telecommunications and related information processing technologies have radically transformed many of the enterprises on which our economy and government services most strongly depend -- and substantially enhanced their productivity. These developments have greatly benefitted society, but they have also put U.S. citizens and the U.S. Government in a position of unprecedented dependence on telecommunications and information (T&I) systems -- and unprecedented vulnerability to T&I system outages. This vulnerability is described compellingly in the 1997 Report of the President's Commission on Critical Infrastructure Protection (CIP), and is prominent among the concerns expressed in Presidential Decision Directive (PDD) 63. The Department of Commerce has been identified as the lead Executive Branch agency for telecommunications and information infrastructure protection, with much of the responsibility falling to the NTIA. The Institute for Telecommunication Sciences (ITS), the chief research and engineering arm of NTIA, serves as the principal Federal resource for solving telecommunication problems of the Federal Government, state and local governments, private corporations and associations, and international organizations. ITS is uniquely qualified to contribute to the joint government/industry initiatives required to protect our critical T&I infrastructures, both by virtue of its expertise in telecommunication sciences (e.g., network planning, modeling and simulation, radio wave propagation and interference prediction, user-oriented performance assessment, communications link protection) and by virtue of its long-standing involvement in cooperative research and development agreements (CRADAs) and other joint work with leading T&I equipment and service providers. ITS holds leadership positions and contributes strongly in U.S. industry and international standards committees (e.g., T1, ITU-T) whose responsibilities include both infrastructure planning and quantitative assessment of network survivability. NTIA proposes to enhance and apply these assets, in cooperation with other government agencies and private sector partners, in systematically addressing our

nation's T&I infrastructure protection needs. The proposed NTIA program will reflect a broad strategic perspective, but will also emphasize, at each stage, the development and dissemination of tangible products whose CIP impacts and benefits can be clearly shown.

During FY 2000, NTIA will establish the program's structure and staffing, integrate and enhance key ITS laboratory and field test capabilities, explore new CRADA relationships involving CIP activities, and begin a focused set of research and development projects collectively advancing NTIA's major CIP goals. NTIA will also initiate technical contributions (and where appropriate, will undertake new leadership responsibilities) in at least one national or international standards committee whose activities directly impact those goals. The FY 2000 CIP program addresses four specific objectives: (1) develop an infrastructure characterization process, (2) identify threats and vulnerabilities, (3) evaluate mitigation strategies, and (4) initiate reliability and restoration projects. These activities are described below. Associated outputs and outcomes are summarized in the concluding text. In subsequent years, NTIA will position itself to address further high priority tasks required to more completely attain the objectives of this most important effort, to protect the operations of vital national telecommunications and information networks. These tasks will be dependent upon the evaluation of the national progress in this protection effort.

As an integral part of these efforts, NTIA will work with NIST to conduct a coordinated technical CIP research program on information and communications (I&C), where NTIA will address threats to the telecommunications infrastructure and NIST will address metrology issues. Coordinated research areas have been identified through an assessment of national research needs by the Administration's CIP Interagency Working Group (IWG) and will be included in the work of the recently chartered NTIA/NIST Critical Infrastructure Protection (CIP) Research Coordination Committee.

**INITIATIVES DESCRIPTION**

**Develop Infrastructure Characterization Process**

CIP evaluation of a T&I infrastructure requires a clear understanding of the facilities to be protected. In most large Federal organizations and in many private enterprises today, no single planning or management entity has a complete, usable, up-to-date specification of the organization's existing infrastructure facilities. Such information can be surprisingly difficult to obtain, reduce, and interpret, particularly in large networks that employ diverse technologies or distributed network management schemes. In this proposed activity, NTIA will define a systematic process for "discovering" and assembling the information needed to characterize the T&I infrastructure facilities dedicated to an organization or function of interest -- and presenting that information in a set of flexible, selectable outputs that CIP analysts and decision-makers can effectively use. The information of interest will include network topologies, traffic levels, and the capacities and availabilities of embedded transmission systems. This work will make maximum use of existing, ITS-developed procedures and tools for embedded resource assessment, new technology evaluation, and cost/benefit analysis, but will also apply commercially-available "discovery" software products and existing configuration and traffic databases where possible. In cases where new capabilities are required to characterize telecommunication networks from a CIP perspective, NTIA will

specify them. This work will provide a practical means of defining what is to be protected in a particular CIP enhancement, thus improving the effectiveness and economy of such initiatives. Results will be disseminated to user organizations in open literature publications and standards contributions. Key results will also be promulgated via the Internet.

**Identify Threats and Vulnerabilities**

In cooperation with other Federal agencies (e.g., NIST, NSA, NCS) and private sector partners, ITS will collect, organize, and evaluate existing information describing the physical and cyber threats that could jeopardize our nation's telecommunications and information infrastructures. The threats considered will include physical attack, jamming, and a range of cyber attacks including, for example, the insertion of artificial traffic and the inactivation or exploitation of signaling, network management, timing distribution, or other support networks on which our traffic-carrying network facilities depend. Both wireline and wireless infrastructure elements will be considered. Results will be documented and disseminated in appropriate ways.

**Evaluate Mitigation Strategies**

In this program element, NTIA will survey, characterize, and assess the principal existing products, emerging technologies, ongoing research, and standards development initiatives that offer practical tools and techniques for mitigating infrastructure vulnerabilities. To complement this evaluation, NTIA will apply its own expertise and act as a catalyst in conceiving and developing new strategies and opportunities for infrastructure reliability or restoral enhancement. Candidate tools and techniques will be assessed in terms of four desired characteristics: flexibility, timeliness, robustness, and cost-effectiveness. As part of this work, NTIA will enhance and apply its unique capabilities and software-based tools for user-oriented network performance assessment and the automated testing of large-scale distributed information networks. NTIA's evaluation will place particular emphasis on CIP enhancement opportunities arising from the emergence of alternative transmission facilities -- e.g., advanced terrestrial wireless, low-earth-orbit satellite, and two-way cable networks -- and the establishment of interfaces among them. The study will also explore the possible uses of hybrid virtual private networks and customer-based network management capabilities in distributing traffic among alternative infrastructures under outage or traffic overload conditions. Results will be promulgated in standards contributions and an open literature publication.

**Initiate Reliability and Restoration Projects**

In close cooperation with other government agencies and private sector partners, ITS will define and initiate a set of focused CIP projects that collectively address the most compelling vulnerabilities and reliability/restoral enhancement opportunities identified in the activities described above. The specific CIP projects established will depend on the results obtained in those activities, but it is likely that NTIA will undertake projects in several of the following areas:

*Network Survivability Measurement* -- Motivate, strengthen, and extend the work of industry standards organizations responsible for telecommunications network survivability assessment (e.g., ANSI-accredited Working Group T1A1.2) to address the need for practical means of assessing the survivability of independently-operated, hybrid-technology (e.g., telephone, terrestrial wireless, satellite, cable television) infrastructures. Lead and/or contribute to related international standards activities as appropriate.

*Enterprise Network Management* -- Assist government agencies and private sector telecommunications users in gathering, usefully applying, and periodically updating network configuration and traffic information of importance to CIP through application of advanced "discovery" software and customer network management capabilities.

*PCS/3G Wireless Interference* -- Spearhead industry (e.g., TIA TR-46.2) standards efforts to develop and promulgate interference and jamming assessment and mitigation methods for PCS and other advanced ("3rd Generation") terrestrial wireless systems. Conduct laboratory and field measurements to objectively evaluate PCS/wireless equipment performance in realistic interference and jamming environments.

*Internet Access* -- Motivate and assist Internet service providers in enhancing the Internet's value as an alternative communications infrastructure and restoral tool by promoting the development of technical standards enhancing the reliability, ubiquity, and capacity of Internet access facilities. Specific strategies will include expanded use of radio local area networks (RLANs).

*LEO Satellite Security* -- In cooperation with NSA, NIST, and private sector partners (e.g., Iridium, Globalstar, Odyssey) develop and demonstrate practical methods of providing end-to-end encryption and security interoperability for LEO satellite services.

NTIA outputs from this program activity will include written project strategies and execution plans, CIP-based MOUs with other government agencies, proposals for cooperative research and development with T&I industry partners, and early results from each of the newly-initiated CIP projects. The final results of the CIP projects initiated during FY 2000 (and other CIP activities that might be proposed later) will be provided in subsequent Fiscal Years.

**Performance Measures:**

**Outputs:** Open literature publications and standards contributions documenting and demonstrating a systematic process for "discovering" and characterizing the telecommunications and information infrastructures of government or large private sector user organizations.

**Outcomes:** The defined discovery process will enable Government agencies and private sector users to accurately characterize their existing infrastructure facilities, thereby providing a practical, concrete basis for CIP enhancement initiatives.

**Outputs:** One or more technical reports that describe the most prevalent T&I infrastructure threats and vulnerabilities.

**Outcomes:** Federal agencies and private sector users will be able to assess T&I threats and associated vulnerabilities in the context of their specific infrastructure facilities.

**Outputs:** Standards contributions and an open literature publication that describes existing products, emerging technologies, ongoing research, and standards development initiatives that could be effective in mitigating T&I infrastructure vulnerabilities.

**Outcomes:** Federal agencies and others will know what CIP enhancement strategies offer the most flexible, timely, robust, and cost-effective solutions to the T&I infrastructure vulnerabilities they face.

**Outputs:** Recommended strategies, execution plans, MOUs, CRADA proposals, and initial technical results from a set of focused CIP projects that collectively address the most compelling vulnerabilities and reliability/restoral enhancement opportunities identified in the FY 2000 NTIA Critical Infrastructure Protection program.

**Outcomes:** Users will have a clear vision and a practical blueprint for future joint government/industry initiatives addressing critical telecommunications and information infrastructure protection needs.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Telecommunication Sciences Research
Program Change: Critical Infrastructure Protection (Research)

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Electrical Engineer | | 14 | 1 | 69,393 | 69,393 |
| Electrical Engineer | | 13 | 1 | 58,723 | 58,723 |
| Electrical Engineer | | 12 | 1 | 50,085 | 50,085 |
| Electrical Engineer | | 11 | 1 | 44,319 | 44,319 |
| Electrical Engineer | | 9 | 2 | 40,821 | 81,642 |
| Office Automation Assistant | | 5 | 1 | 22,475 | 22,475 |
| Subtotal | | | 7 | | 326,637 |
| Less lapse | 25.0% | | (2) | | (81,659) |
| Total full-time permanent | | | 5 | | 244,978 |
| 2000 Pay Adjustment | 4.4% | | | | 10,779 |
| | | | | | 255,757 |

| Personnel Data | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 5 |
| Other than full-time permanent | 0 |
| Total | 5 |
| Authorized Positions: | |
| Full-time permanent | 7 |
| Other than full-time permanent | 0 |
| Total | 7 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Telecommunication Sciences Research
Program change: Critical Infrastructure Protection (Research)

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 256 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| 11.9 | Total personnel compensation | 256 |
| 12.1 | Civilian personnel Benefits | 72 |
| 21 | Travel and transportation of persons | 30 |
| 22 | Transportation of things | 0 |
| 23.1 | Rental payments to GSA | 0 |
| 23.2 | Rental payments to others | 0 |
| 23.3 | Communications, utilities and misc charges | 0 |
| 24 | Printing and reproduction | 10 |
| 25.1 | Consulting Services | 0 |
| 25.2 | Other Services | 0 |
| 25.3 | Purchase of goods & services from Gov't accounts | 68 |
| 25.7 | Operation and maintenance of equipment | 2 |
| 26 | Supplies and materials | 35 |
| 31 | Equipment | 330 |
| **99** | **Total obligations** | 803 |

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Salaries and Expenses**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|
| | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Telecommunication Sciences Research.....Pos./BA | 37 | $ 3,691 | 55 | $4,891 | 18 | $1,200 |
| FTE/Obl. | 37 | $ 3,691 | 51 | $4,891 | 14 | $1,200 |

**Broadband Network Development (+14 FTEs, +$1,200).** As dramatically successful and useful as today's advanced telecommunications networks are, there are many developments underway. The future depends on interrelated developments in technology, competition, and regulation. The Federal Government must be actively engaged in these developments. Its policies must reduce regulatory uncertainty and regulatory impediments to the investments and entry needed to create broader-band networks. Its policies can and will encourage competition in the market, while structuring market entry conditions. The Federal Government cannot, however, second guess the market, and should avoid decisions that distort it.

Industry and Government each have roles in this process. The Federal Government, for its part, needs to assist in the development of broader-band networking through research, measurement and test capabilities, and other programs.

This initiative proposes that NTIA progressively undertake activities consistent with this approach. The first activity will be to upgrade the existing Radio Spectrum Measurement System (RSMS) to support public and private sector activities working toward advanced broadband networks of the future. The upgrade will provide an essential capability for measuring spectrum characteristics of new broadband techniques, such as digital signals, spread spectrum or code-division modulation, and other factors, which the RSMS now cannot effectively measure and thus, cannot adequately support spectrum management needs of U.S. industry and the NTIA and FCC. In subsequent years, NTIA will position itself to address further high priority, high visibility topics concerning broadband networks by upgrading its research and development facilities. These upgrades will include development of an Advanced Antenna Testbed, a Multimedia Research Testbed, and an Advanced Satellite Testbed.

**Initiative Description**

The Telecommunication Sciences Research Radio Spectrum Measurement System (RSMS) program provides essential spectrum measurement and testing support for NTIA's spectrum management mandate. This support has been sustained by the development and maintenance of state-of-the-art measurement and testing capabilities that have consistently enabled NTIA to meet the spectrum-analysis obligations that have arisen during that time. To meet these obligations, the RSMS program has been periodically upgraded to incorporate new capabilities, and as a result the program is now operating the third-generation version of the system. Each new version has been required to update the RSMS at a state-of-the-art level, so that it can measure and test emissions from newly deployed radio systems. The introduction of new radio technologies and modulation techniques, wider frequency ranges, wider occupied bandwidths, and related advances in the use of the radio spectrum are rapidly outpacing the ability of the RSMS to perform such spectrum support functions. The current RSMS is now almost seven years old in software and ten years old in hardware, and is no longer able to measure some current and soon-to-be-deployed radio systems, including various broadband technologies.

An RSMS upgrade will allow NTIA to perform necessary measurements on all radio transmitters, including broadband systems, and thus NTIA will be able to meet all requirements of internal operating units (Office of Spectrum Management (OSM), Spectrum Engineering and Analysis Division (SEAD), etc.) as well as of Congress and the Interdepartment Radio Advisory Committee (IRAC). Requirements include the capability of performing state-of-the-art frequency-domain and time-domain measurements on all types of deployed radio transmitters, including new broadband-technology systems. These measurements will benefit national spectrum management in the resolution of technical problems created by the introduction of new radio technologies and by increasing crowding of the radio spectrum. The initial steps include the design of hardware and software to meet the emerging broadband measurement requirements. The current RSMS will be upgraded by incorporation of these enhanced hardware and software features.

As new radio technologies are introduced, incorporating advances in the use of the radio spectrum, there will be continuing requirements in subsequent years, to support broadband network development. Such requirements are expected to necessitate the following upgrades to NTIA's research facilities:

*Developing an Advanced Antenna Testbed for testing and comparing the performance of adaptive antennas;

*Developing a Multimedia Research Testbed to determine the performance and degree of interoperability of advanced network services and multimedia communications systems in a commercially neutral setting;

*Developing an Advanced Satellite Testbed to access and optimize satellite/terrestrial network interoperability and performance under a wide range of transmission and simulated traffic conditions.

**Performance Measures:**

**Outputs:** Complete the design of a state-of-the-art, mobile measurement system to meet national spectrum needs well into the first part of the 21st century.

**Outcomes:** The availability of a detailed design of a measurement system that can be implemented to increase the effectiveness of spectrum management by NTIA, the IRAC, and Congress.

**Outputs:** Incorporation of the state-of-the-art, measurement system design into the RSMS system.

**Outcomes:** The availability of a mobile measurement system that is capable of providing measurement and testing support of new broadband systems.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Telecommunication Sciences Research
Program Change: Broadband Network Development

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Electronics Engineer | | 12 | 1 | 50,085 | 50,085 |
| Electronics Engineer | | 11 | 1 | 44,319 | 44,319 |
| Electronics Engineer | | 9 | 6 | 40,821 | 244,926 |
| Electronics Engineer | | 7 | 6 | 33,362 | 200,172 |
| Electronics Technician | | 6 | 3 | 25,051 | 75,153 |
| Office Automation Assistant | | 5 | 1 | 22,475 | 22,475 |
| Subtotal | | | 18 | | 637,130 |
| Less lapse | 25.00% | | (4) | | (159,283) |
| Total full-time permanent | | | 14 | | 477,848 |
| 2000 Pay Adjustment | 4.4% | | | | 21,025 |
| | | | | | 498,873 |

| Personnel Data | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 14 |
| Other than full-time permanent | 0 |
| Total | 14 |
| Authorized Positions: | |
| Full-time permanent | 18 |
| Other than full-time permanent | 0 |
| Total | 18 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Telecommunication Sciences Research
Program change: Broadband Network Development

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 499 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| 11.9 | Total personnel compensation | 499 |
| 12.1 | Civilian personnel Benefits | 140 |
| 21 | Travel and transportation of persons | 0 |
| 22 | Transportation of things | 0 |
| 23.1 | Rental payments to GSA | 0 |
| 23.2 | Rental payments to others | 0 |
| 23.3 | Communications, utilities and misc charges | 0 |
| 24 | Printing and reproduction | 0 |
| 25.1 | Consulting Services | 0 |
| 25.2 | Other Services | 0 |
| 25.3 | Purchase of goods & services from Gov't accounts | 176 |
| 25.7 | Operation and maintenance of equipment | 0 |
| 26 | Supplies and materials | 25 |
| 31 | Equipment | 360 |
| **99** | **Total obligations** | 1,200 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ (Decrease) Over 2000 Base |
|---|---|---|---|---|---|
| **Object Class:** | | | | | |
| 11 Personnel compensation | | | | | |
| 11.1 Full-time permanent | 6,575 | 5,876 | 6,149 | 8,102 | 1,953 |
| 11.3 Other than full-time permanent | 139 | 423 | 260 | 260 | 0 |
| 11.5 Other personnel compensation | 262 | 20 | 20 | 20 | 0 |
| 11.9 Total personnel compensation | 6,976 | 6,319 | 6,429 | 8,382 | 1,953 |
| 12.0 Change of Station | 23 | 0 | 0 | 0 | 0 |
| 12.1 Civilian Personnel Benefits | 1,358 | 1,253 | 1,463 | 2,011 | 548 |
| 13.1 Unemployment Compensation | 40 | 0 | 0 | 0 | 0 |
| 21 Travel and transportation of persons | 580 | 453 | 319 | 909 | 590 |
| 22 Transportation of things | 20 | 20 | 16 | 19 | 3 |
| 23.1 Rental payments to GSA | 746 | 1,068 | 1,068 | 1,277 | 209 |
| 23.2 Rental Payments to Others | 4 | 13 | 13 | 43 | 30 |
| 23.3 Commun., util., misc. charges | 133 | 340 | 333 | 394 | 61 |
| 24 Printing and reproduction | 13 | 83 | 130 | 147 | 17 |
| 25.1 Consulting Services | 630 | 250 | 263 | 1,563 | 1,300 |
| 25.2 Other Services | 853 | 189 | 29 | 129 | 100 |
| 25.3 Purchase of goods & services from Gov't accounts | 3,683 | 1,204 | 313 | 821 | 508 |
| 25.7 Operation and maintenance of equipment | 260 | 210 | 214 | 235 | 21 |
| 26 Supplies and materials | 658 | 171 | 194 | 274 | 80 |
| 31 Equipment | 562 | 212 | 225 | 1,008 | 783 |
| 41 Grants, subsidies, and contributions | 9 | 0 | 0 | 0 | 0 |
| **99 Total Obligations** | 16,548 | 11,785 | 11,009 | 17,212 | 6,203 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Currently Available | 2000 Base | 2000 Estimate | Increase/ (Decrease) Over 2000 Base |
|---|---|---|---|---|---|
| **Personnel Data:** | | | | | |
| Direct: | | | | | |
| Full-Time equivalent Employment: | | | | | |
| Full-time permanent | 105 | 96 | 96 | 133 | 37 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 105 | 96 | 96 | 133 | 37 |
| Authorized positions: | | | | | |
| Full-time permanent | 105 | 98 | 98 | 142 | 44 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 105 | 98 | 98 | 142 | 44 |
| **TOTAL:** | | | | | |
| Full-Time equivalent Employment: | 105 | 96 | 96 | 133 | 37 |
| Authorized positions: | 105 | 98 | 98 | 142 | 44 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|
| 11 Personnel compensation | | | | |
| 11.1 Full-time permanent | | | | |
| Executive level | 7 | 131 | 131 | 0 |
| Senior executive service | 61 | 1,162 | 1,294 | 132 |
| General schedule | 270 | 4,856 | 6,677 | 1,821 |
| Consultants & experts | | | | |
| Subtotal | 338 | 6,149 | 8,102 | 1,953 |
| 11.3 Other than full-time permanent | | | | |
| General schedule | | 260 | 260 | |
| Consultants & experts | | | | |
| Subtotal | | 260 | 260 | |
| 11.5 Other personnel compensation | | | | |
| Overtime | | 20 | 20 | |
| Cash awards | | | | |
| Subtotal | | 20 | 20 | |
| 11.9 Total personnel compensation | 338 | 6,429 | 8,382 | 1,953 |
| 12.1 Civilian personnel benefits | | | | |
| Civil service retirement | (13) | 272 | 313 | 41 |
| Federal employees' retirement | 65 | 454 | 667 | 213 |
| Thrift savings plan | 12 | 75 | 124 | 49 |
| Federal Insurance Contribution Act | 30 | 225 | 316 | 91 |
| Health insurance | 18 | 307 | 429 | 122 |
| Life insurance | | 19 | 26 | 7 |
| Medicare | 3 | 95 | 120 | 25 |
| Employees' compensation fund | (3) | 16 | 16 | |
| Other | | | | |
| Subtotal | 112 | 1,463 | 2,011 | 548 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|
| 21 Travel and transportation of persons | | | | |
| Common carrier | | 116 | 371 | 255 |
| Per diem/actual | 30 | 192 | 447 | 255 |
| Other | | 11 | 91 | 80 |
| Subtotal | 30 | 319 | 909 | 590 |
| 22 Transportation of things | | 16 | 19 | 3 |
| Subtotal | | 16 | 19 | 3 |
| 23.1 Rental payments to GSA | | 1,068 | 1,277 | 209 |
| 23.2 Rental Payments to Others | | 13 | 43 | 30 |
| Subtotal | | 1,081 | 1,320 | 239 |
| 23.3 Communications, utilities and miscellaneous charges | | | | |
| Rental of ADP equipment | | 131 | 134 | 3 |
| Rental of office copying equipment | | 42 | 49 | 7 |
| Other equipment rental | | 9 | 9 | |
| Federal telecommunications system | 3 | 66 | 97 | 31 |
| Other telecommunications services | | 65 | 69 | 4 |
| Postal Service by USPS | 1 | 20 | 36 | 16 |
| Other | | | | |
| Subtotal | 4 | 333 | 394 | 61 |
| 24 Printing and reproduction | | | | |
| Printing and reproduction | 4 | 100 | 117 | 17 |
| Page charges and reprints | | 30 | 30 | |
| Subtotal | 4 | 130 | 147 | 17 |
| 25.1 Consulting Services | | | | |
| Management and profesional services | | 263 | 1,563 | 1,300 |
| Subtotal | | 263 | 1,563 | 1,300 |
| 25.2 Other Services | | | | |
| Contractual Services | | 22 | 122 | 100 |
| Training | | 7 | 7 | |
| Subtotal | | 29 | 129 | 100 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| **Object Class** | 2000 Adjustment to Base | 2000 Base | 2000 Estimate | Increase/ (Decrease) |
|---|---|---|---|---|
| 25.3 Purchase of goods and services from other Gov't agencies | | | | |
| Training - Office of Personnel Management | | | | |
| National Oceanic and Atmospheric Admin. - Cross Services | | 169 | 256 | 87 |
| National Institute of Standards and Tech. - Cross Services | | 175 | 262 | 87 |
| National Institute of Standards and Tech. - Acctg Services | | 202 | 235 | 33 |
| Department of State | (500) | 0 | 0 | |
| Other agencies | | (1,233) | (937) | 296 |
| Maintenance of equipment | | 59 | 59 | |
| GSA reimbursable services | | 43 | 43 | |
| Payments to Working Capital Fund | 81 | 871 | 876 | 5 |
| Transfer to General Administration | | 0 | 0 | |
| Commerce Administrative Management System (CAMS) | | 27 | 27 | |
| Subtotal | (419) | 313 | 821 | 508 |
| 25.7 Operation and maintenance of equipment | | | | |
| Software and hardware operation and maintenance | | 214 | 235 | 21 |
| Subtotal | | 214 | 235 | 21 |
| 26 Supplies and materials | | | | |
| Office supplies | | 94 | 106 | 12 |
| ADP supplies | | 100 | 168 | 68 |
| Subtotal | | 194 | 274 | 80 |
| 31 Equipment | | | | |
| Office machines and equipment | | 93 | 93 | 0 |
| ADP hardware | | 24 | 512 | 488 |
| ADP software | | 8 | 283 | 275 |
| Equipment Depreciation | | 100 | 120 | 20 |
| Other | | 0 | 0 | |
| Subtotal | | 225 | 1,008 | 783 |
| **99 Total Obligations** | 69 | 11,009 | 17,212 | 6,203 |

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
APPROPRIATIONS LANGUAGE AND CODE CITATIONS

For necessary expenses, as provided for by law, of the National Telecommunications and Information Administration (NTIA), $17,212,000, to remain available until expended: *Provided,* That notwithstanding 31 U.S.C. 1535(d), the Secretary of Commerce shall charge Federal agencies for costs incurred in spectrum management, analysis and operations, and related services and such fees shall be retained and used as offsetting collections for costs of such spectrum services, to remain available until expended: *Provided further,* That hereafter, notwithstanding any other provision of law, NTIA shall not authorize spectrum use or provide any spectrum functions pursuant to the NTIA Organization Act, 47 U.S.C. 902- 903, to any Federal entity without reimbursement as required by NTIA for such spectrum management costs, and Federal entities withholding payment of such cost shall not use spectrum: *Provided further,* That the Secretary of Commerce is authorized to retain and use as offsetting collections all funds transferred, or previously transferred, from other Government agencies for all costs incurred in telecommunications research, engineering, and related activities by the Institute for Telecommunication Sciences of the NTIA, in furtherance of its assigned functions under this paragraph, and such funds received from other Government agencies shall remain available until expended.

15 U.S.C. § 1512
15 U.S.C. § 1532
47 U.S.C. § 305
47 U.S.C. § 606
47 U.S.C. § 701, et. seq., §§ 721, 744

15 U.S.C. § 1512 sets forth the functions of the United States Advisory Council on the National Information Infrastructure (NII) whose members are appointed by the Secretary of Commerce. The Council advises the Secretary on matters related to and strategy for promoting the development of the NII.

15 U.S.C. § 1532 authorizes the Secretary of Commerce to conduct research and analysis in all telecommunications sciences; to investigate the transmission of radio waves and electromagnetic radiation; and to compile, evaluate, publish, and distribute related information.

47 U.S.C. § 305 authorizes the Secretary of Commerce to assign frequencies to radio stations or classes of radio stations belonging to and operated by the United States. Originally delegated to the Department of Commerce by Executive Order 12046, as later codified in the National Telecommunications and Information Administration Organization Act, 47 U.S.C. § 901, et. seq.

47 U.S.C. § 606 and associated Executive Orders authorize the President to perform certain telecommunications emergency functions essential to security and the national defense.

47 U.S.C. § 701 et. seq., particularly §§ 721 and 744 authorize the President to perform certain functions related to the planning and development of a national program for the establishment and operation of a commercial communications satellite system.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
ADVISORY AND ASSISTANCE SERVICES
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|
| Management & Professional Support Services | $ 630 | $ 250 | $1,563 |
| Studies, Analysis & Evaluations | .... | .... | .... |
| Engineering & Technical Services | .... | .... | .... |
| Totals | $ 630 | $ 250 | $1,563 |

Management & Professional Support Services: NTIA utilizes consultants throughout its programs to provide scientific or technical expertise in specialized area, e.g., the use of consultants to define operational needs and provide technical support for the following FY 2000 initiatives:

Critical Infrastructure Protection - Lead Agency
Critical Infrastructure Protection - Information Sharing and Analysis Center (ISAC)

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
PERIODICALS, PAMPHLETS AND AUDIOVISUAL PRODUCTS
(Dollar amounts in thousands)

| | 1997 Actual | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|---|
| Periodicals | $ 0 | $ 0 | $ 0 | $ 0 |
| Pamphlets | 40 | 28 | 30 | 50 |
| Audiovisual products | 0 | 3 | 5 | 5 |
| Total | $ 40 | $ 31 | $ 35 | $ 55 |

NTIA utilizes pamphlets to provide an overview of NTIA programs and services to the public.

Department of Commerce
National Telecommunications and Information Administration
Salaries and Expenses
AVERAGE GRADE AND SALARIES

| | 1998 Actual | 1999 Estimated | 2000 Estimated |
|---|---|---|---|
| Direct: | | | |
| Average ES Salary | $123,464 | $100,720 | $107,541 |
| Average GS Grade | 12.1 | 12.2 | 11.9 |
| Average GS Salary | $53,919 | $55,946 | $56,238 |

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

| Page No. | | Positions | Budget Authority | FTE | Direct Obligations |
|---|---|---|---|---|---|
| | Appropriation Available, FY 1999 | 13 | 21,000 | 13 | 21,000 |
| | plus: 2000 Adjustments to base | 0 | 55 | 0 | 55 |
| | 2000 base request | 13 | 21,055 | 13 | 21,055 |
| | less: 2000 Program changes | 11 | 14,000 | 8 | 14,000 |
| | 2000 Estimate | 24 | 35,055 | 21 | 35,055 |

| | **Comparison by activity:** | | 1998 Actual/1 Personnel | 1998 Actual/1 Amount | 1999 Currently Available/1 Personnel | 1999 Currently Available/1 Amount | 2000 Base/1 & 2 Personnel | 2000 Base/1 & 2 Amount | 2000 Estimate/1 & 2 Personnel | 2000 Estimate/1 & 2 Amount | Increase/ (Decrease) Over 2000 Base Personnel | Increase/ (Decrease) Over 2000 Base Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NTIA-146 | Public Telecommunications Facilities, | Pos./BA | 12 | 21,000 | 13 | 21,000 | 13 | 21,055 | 24 | 35,055 | 11 | 14,000 |
| | Planning and Construction | FTE/Obl. | 12 | 21,767 | 13 | 23,145 | 13 | 21,055 | 21 | 35,055 | 8 | 14,000 |
| | Grants | Pos./BA | 0 | 19,500 | 0 | 19,200 | | | | | | |
| | | FTE/Obl. | 0 | 19,944 | 0 | 21,171 | | | | | | |
| | Program Management | Pos./BA | 12 | 1,500 | 13 | 1,800 | | | | | | |
| | | FTE/Obl. | 12 | 1,823 | 13 | 1,974 | | | | | | |
| | **Adjustments to obligations:** | | | | | | | | | | | |
| | Recoveries | | | (937) | | | | | | | | |
| | Unobligated balance, start of year | | | (1,975) | | (2,145) | | | | | | |
| | Unobligated balance transferred | | | | | | | | | | | |
| | Unobligated balance, end of year | | | 2,145 | | | | | | | | |
| | Unobligated balance, expiring | | | | | | | | | | | |
| | Financing from transfers: | | | | | | | | | | | |
| | Transfers from other accounts (-) | | | | | | | | | | | |
| | Transfers to other accounts (+) | | | | | | | | | | | |
| | | | | 21,000 | | 21,000 | | 21,055 | | 35,055 | | 14,000 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).
/2 FY 2000 Base and Estimate columns have been changed to consolidate the subactivity lines for grants and program management.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF FINANCING
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) Over 2000 Base |
|---|---|---|---|---|---|
| **Total Obligations** | 21,767 | 23,145 | 21,055 | 35,055 | 14,000 |
| Offsetting collections from: | | | | | |
| Federal funds | | | | | |
| Non-Federal sources | | | | | |
| Recoveries | (937) | | | | |
| Unobligated balance, start of year | (1,975) | (2,145) | | | |
| Unobligated balance transferred | | | | | |
| Unobligated balance, end of year | 2,145 | | | | |
| Unobligated balance lapsing | | | | | |
| **Budget Authority** | 21,000 | 21,000 | 21,055 | 35,055 | 14,000 |
| Financing: | | | | | |
| Transfer from other accounts (-) | | | | | |
| Transfer to other accounts (+) | | | | | |
| **Appropriation** | 21,000 | 21,000 | 21,055 | 35,055 | 14,000 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

| | | | Absorbed | |
|---|---|---|---|---|
| | FTE | Amount | FTE | Amount |
| **Other Changes:** | | | | |
| 1999 Pay raise | 0 | 9 | 0 | 0 |
| 2000 Pay raise | 0 | 42 | 0 | 0 |
| Within-grade step increases | 0 | 5 | 0 | (5) |
| Civil Service Retirement System (CSRS) | 0 | 7 | 0 | 0 |
| Federal Employees' Retirement System (FERS) | 0 | (8) | 0 | 0 |
| Thrift Savings Plan | 0 | (2) | 0 | 0 |
| Federal Insurance Contributions Act (FICA) - OASDI | 0 | (4) | 0 | 0 |
| Health Insurance | 0 | 2 | 0 | 0 |
| Travel (per diem) | 0 | 3 | 0 | 0 |
| Rental payments to GSA | 0 | 3 | 0 | (3) |
| Printing and reproduction | 0 | 1 | 0 | 0 |
| Federal Telephone Service | 0 | 1 | 0 | 0 |
| Postage | 0 | 1 | 0 | 0 |
| National Archives and Record Administration (NARA) | 0 | 3 | 0 | 0 |
| Working Capital Fund | 0 | 78 | 0 | (78) |
| General Pricing Level Adjustment | 0 | 2 | 0 | (2) |
| **Subtotal, adjustments to base** | **0** | **143** | **0** | **(88)** |
| **Absorbed** | **0** | **(88)** | **0** | **88** |
| **Total, adjustments to base** | **0** | **55** | **0** | **0** |

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
Justification of Adjustments to Base
(Dollar amounts in thousands)

| | | FTE | Amount |
|---|---|---|---|
| **Other Changes:** | | | |
| Pay Raises | | 0 | 51 |
| Full year cost of 1999 pay increase and related costs | | | |
| The 1999 President's Budget assumes a pay raise of 3.6% to be effective January 1, 1999. | | | |
| Total cost in 2000 of 1999 pay increase | 24,000 | | |
| Less amount funded in 1999 | (15,000 ) | | |
| Amount requested in 2000 to provide cost of 1999 pay raise | 9,000 | | |
| Payment to Working Capital Fund | 0 | | |
| Total adjustment for 1999 pay increase | 9,000 | | |
| 2000 pay increase and related costs | | | |
| A general pay raise of 4.4 is assumed to be effective January 1, 2000. | | | |
| Total cost in 2000 of pay increase | 38,000 | | |
| Less amount absorbed in 2000 | 0 | | |
| Amount requested for 2000 pay increase | 38,000 | | |
| Payment to the Working Capital Fund | 4,000 | | |
| Total adjustment for 2000 pay increase | 42,000 | | |

| | FTE | Amount |
|---|---|---|
| Within-grade step increases | 0 | 5 |

An increase of $5,060 is required to cover the cost of within-grade step increases. This estimate reflects the net cost of step increases which will be earned in 2000.

| | |
|---|---|
| Estimated number of within-grade step increases | 2 |
| Step increases not earned due to turnover (0% x 0) | 0 |
| Average step above step 1 per separation | 3 |
| Average cost per within-grade step increase | 2,198 |
| Gross cost of scheduled step increases ($2,198 x 2) | 4,396 |
| Less savings due to separations ($2,198 x 0 x 0) | ( 0 ) |
| Subtotal personnel compensation | 4,396 |
| Benefits | 664 |
| Total adjustment to base | 5,060 |

| | | |
|---|---|---|
| Civil Service Retirement System (CSRS) | 0 | 7 |

The percentage of employees covered by the Civil Service Retirement System (CSRS) has increased as positions filled by employees who are covered by the Federal Employees' Retirement System (FERS) have been vacated during FY 1998. The estimated percentage of payroll for employees covered by CSRS will increase from 43.4% in 1999 to 51.1% in 2000 for employees. Contribution rates will remain at 8.51% in 2000.

| | |
|---|---|
| 2000 ($997,000 x .511 x .851) | 43,356 |
| 1999 ($997,000 x .434 x .851) | 36,823 |
| Total adjustment-to-base | 6,533 |

| | | FTE | Amount |
|---|---|---|---|
| Federal Employees' Retirement System (FERS) | | 0 | (8) |
| The number of employees covered by the Federal Employees' Retirement System (FERS) will decrease as the result of positions being vacated during FY 1998. The estimated percentage of payroll for employees covered by FERS will decrease from 56.6% in 1999 to 48.9% in 2000. The contribution rate of 10.7% will remain the same. | | | |
| 2000 ($997,000 x .489 x .107) | 52,166 | | |
| 1999 ($997,000 x .566 x .107) | 60,380 | | |
| Total adjustment-to-base | (8,214 ) | | |
| Thrift Savings Plan | | 0 | (2) |
| The cost of agency contributions to the Thrift Savings Plan will decrease as FERS participation decreases. The contribution rate is expected to remain 2.0%. | | | |
| 2000 ($997,000 x .489 x .02) | 9,751 | | |
| 1999 ($997,000 x .566 x .02) | 11,286 | | |
| Total adjustment-to-base | (1,535 ) | | |
| Federal Insurance Contributions Act (FICA) | | 0 | (4) |
| As the percentage of payroll covered by FERS decreases, the cost of OASDI contributions will decrease. In addition, the maximum salary subject to OASDI tax will rise from $70,725 in FY 1999 to $73,275 in FY 2000. The OASDI tax will remain 6.2% in 2000. | | | |
| 2000 ($997,000 x .489 x .922 x .062) | 27,869 | | |
| 1999 ($997,000 x .566 x .920 x .062) | 32,188 | | |
| Total adjustment-to-base | (4,319 ) | | |
| Health Insurance | | 0 | 2 |
| Effective January 1998, NTIA's contribution to Federal Employees' health insurance premiums increased by 4.8%. This represents an increase of $1,776 over the FY 1999 estimate of $37,000. | | | |

| | FTE | Amount |
|---|---|---|
| Travel | 0 | 3 |
| Effective January 1998, the General Services Administration raised per diem rates. This increase resulted in a 8.9% increase to NTIA. This percentage was applied to the FY 1999 estimate of $30,000 to arrive at an increase of $2,670. | | |
| Rental Payments to GSA | 0 | 3 |
| GSA has provided an estimated increase of 2.6% in FY 2000. This represents an increase of $3,042 over the FY 1999 estimate of $117,000. | | |
| Printing and reproduction | 0 | 1 |
| The Government Printing Office (GPO) has provided an estimated rate increase of 3.1%. This percentage was applied to the FY 1999 estimate of $20,000 to arrive at an increase of $620. | | |
| Federal Telephone System | 0 | 1 |
| An additional $833 is required to fund a surcharge of 4.9% for FTS 2000 services. | | |
| Postage | 0 | 1 |
| An increase of $620 is required to fund the 3.1% increase in USPS fees. | | |
| National Archives and Record Administration (NARA) Storage Costs | 0 | 3 |
| In FY 2000, NARA will begin billing agencies for records storage and maintenance costs. The estimate for NTIA is $3,000. | | |
| Working Capital Fund | 0 | 78 |
| An additional $78,000 is required to fund cost increases in the Departmental Working Capital Fund. | | |
| General Pricing Level Adjustment | 0 | 2 |
| This request applies OMB economic assumptions of 1% for 1999 to subobject classes where the prices that the Government pays are established through the market system. Factors are applied to other services ($2,000). | __ | ___ |

| | | |
|---|---|---|
| **Subtotal, adjustments to base** | **0** | **143** |
| **Absorbed** | **0** | **(88)** |
| **Total, adjustments to base** | **0** | **55** |

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

Activity: Public Telecommunications Facilities, Planning and Construction

| | | 1998 Actual/1 | | 1999 Currently Available/1 | | 2000 Base/1 &2 | | 2000 Estimate/1 & 2 | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Public Telecommunications Facilities, | Pos./BA | 12 | 21,000 | 13 | 21,000 | 13 | 21,055 | 24 | 35,055 | 11 | 14,000 |
| Planning and Construction | FTE/Obl. | 12 | 21,767 | 13 | 23,145 | 13 | 21,055 | 21 | 35,055 | 8 | 14,000 |
| Grants | Pos./BA | 0 | 19,500 | 0 | 19,200 | | | | | | |
| | FTE/Obl. | 0 | 19,944 | 0 | 21,171 | | | | | | |
| Program Management | Pos./BA | 12 | 1,500 | 13 | 1,800 | | | | | | |
| | FTE/Obl. | 12 | 1,823 | 13 | 1,974 | | | | | | |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).
/2 FY 2000 Base and Estimate columns have been changed to consolidate the subactivity lines for grants and program management.

**Department of Commerce**
**National Telecommunications and Information Administration**
**Public Telecommunications Facilities, Planning and Construction**
**Justification of Program Performance**

## Activity: Public Telecommunications Facilities, Planning and Construction

### Goal Statement

Through the enactment of appropriations over the last 35 years, the Administration and Congress have supported the development of a broad based public telecommunications infrastructure to serve the American people. Through appropriations made to the Public Telecommunications Facilities Program (PTFP), the Congress has enabled Americans to have access to quality public television and radio. These funds also have permitted the funding of innovative projects in the field of distance education at the K-12, higher education and postgraduate levels. Over $500 million has been invested in this manner to ensure over 90% coverage of public television and public radio and to support key distance learning projects. The PTFP must continually meet the challenges raised by the need to reach underserved populations; assuring adequate equipment to keep stations on the air; promote innovative applications of technology for public telecommunications; and ensure that new technological developments are taken into account in funding decisions. The Administration's plans for digital transition require that PTFP support the FCC's mandate of conversion of television to digital broadcast technologies while continuing to ensure the availability of current public telecommunications services.

### Proposed Legislation

Draft legislation to authorize appropriations for the continuation of this program for FY 2000 will be prepared.

On June 12, 1998, Secretary Daley transmitted the Public Broadcasting Digital Investment Act of 1998 to Congress. The Act directs the Department of Commerce and the Corporation for Public Broadcasting to work together for purposes of the digital transition and to prepare jointly two reports. One report will detail their joint implementation plans to assist public stations convert to digital transmission. The other, due in 2002, will describe the progress of the noncommercial educational broadcast stations in converting to digital technology.

## Base Program

**Explanation and Justification**

The Administration must ensure that the base infrastructure for public broadcasting stays intact. Over 250 million people have access to public television and over 200 million people have access to public radio. The value of the imbedded infrastructure for public broadcasting is in excess of $2 billion. Although public broadcasting stations in more affluent areas have been successful in replacing equipment, stations in less affluent, rural and remote areas suffer a gap in available funds that only the Federal Government can fill. For many stations, Federal funding is used to replace the most urgent basic equipment needed to keep a station on the air. All PTFP equipment grants are matched with local funds which multiply the program's impact and indicate local commitment.

PTFP also must provide funds to those communities that still have no access to a public broadcasting signal. The excellent services offered by public broadcasters are not available to tens of millions of our citizens. Educational and cultural opportunities can be enhanced by the provision of public broadcasting signals. PTFP works with the unserved communities in bringing a signal to their area. These communities are often remote and rural and with no other way to receive the services offered over the public airwaves.

NTIA also has found that several technologies can be appropriate to provide valuable educational and cultural services to a community. The use of narrowband technologies is appropriate to bring certain types of educational services to a community. Often, these alternative services are cost effective for their intended audiences and targeted to reach a select community. For 20 years PTFP has funded innovative projects that provide distance learning and other education services not ordinarily met through normal public broadcasting signals. These projects are often regional or national in scope and use technologies that reach audiences across the country.

PTFP also provides important seed funding for public telecommunications services used by the blind and the hearing impaired. Although the number of these projects is usually small, their impact is of utmost significance to this severely underserved population.

**Strategic Intent**

This program fulfills the goal of NTIA's Strategic Plan to advance the public interest in telecommunications, mass media, and information. Congress has mandated that public broadcasting should be available to all Americans. It is a free, non-commercial, educational, cultural and public service available to all citizens in their homes, offices and cars, in rural as well as urban areas. Funding this program continues to be an efficient way to meet this goal. Public broadcasting is also a service that has made a conscious, sustained effort to reach out to the needs of the traditionally unserved populations of the Nation.

The program will also further NTIA's goal of promoting the availability and sources of advanced telecommunications and information services. PTFP recipients have used a variety of video- and audio-based technologies to provide valuable educational and cultural services to a community.

The PTFPC program supports Theme I of the Commerce Strategic Plan, i.e., "Build for the future and promote U.S. competitiveness in the global marketplace, by strengthening and safeguarding the nation's economic infrastructure." The measure of the PTFPC program will be to maintain the current level coverage of public broadcasting recipients during the digital transition:

| 1998 | 1999 | 2000 |
|---|---|---|
| 95% | 95% | 95% |

**Statement of Operating Objectives**

The objectives of this request are derived from the purposes defined in legislation. NTIA will fund those projects which will maintain the current public broadcasting infrastructure including those projects that result from emergency situations. PTFP will give high priority to projects that bring signals to areas of the country that do not now receive a public broadcasting signal. Distance learning projects that adopt innovative techniques and that serve unique audiences will be considered for funding. Projects that assist the blind and hearing impaired will be encouraged to ensure that they participate fully in the benefits of telecommunications.

**Exhibit 13**

**Department of Commerce**
**National Telecommunications and Information Administration**
**Public Telecommunications Facilities, Planning and Construction**
**INCREASE FOR 2000**
**(Dollar amounts in thousands)**

| | 2000 Base | | 2000 Estimate | | Increase | |
|---|---|---|---|---|---|---|
| | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| Public Telecommunications Facilities, | | | | | | |
| Planning and Construction.....Pos./BA | 13 | $21,055 | 24 | $35,055 | 11 | $14,000 |
| FTE/Obl. | 13 | $21,055 | 21 | $35,055 | 8 | $14,000 |

**Public Telecommunications Facilities, Planning and Construction (PTFPC) (+8 FTE, +$14,000)**. Under the Public Telecommunications Facilities Program (PTFP), NTIA provides matching grants to assist in the planning and construction of public telecommunications facilities. The grants achieve three Congressionally mandated objectives: (1) extend delivery of public telecommunications services to as many American as possible by the most effective and efficient means; (2) increase public telecommunications services and facilities available to, operated by and owned by minorities and women; and (3) strengthen the capability of existing public broadcasting stations. The President's digital transition initiative will allow NTIA to assist broadcast stations as they make an orderly transition to digital broadcasting. The transition to digital broadcasting will strengthen the capability of existing public broadcasting stations. The initiative will be in conformance with Administration policies, Congressional directives and FCC regulations which mandate a nationwide conversion from analog to digital broadcasting signals.

**Initiative Description**

For over 30 years, the Public Telecommunications Facilities Program (PTFP) has played a major role in the development of public broadcasting facilities throughout the United States and its territories. Under this initiative, PTFP will assist in the digital transition of public broadcasting stations through the awarding of competitive grants to strengthen the capacity of existing broadcasting stations. The grants issued will allow stations to convert from analog to digital formats, provide incentives for more efficient operations and allow broadcasting stations to meet the requirements

and deadlines for digital conversion as specified by the FCC. With this initiative NTIA, working with the Corporation for Public Broadcasting (CPB), will be able to meet the urgent financial needs of broadcasting stations during the transition to digital broadcasting.

The initiative is part of the President's program to ensure that the benefits of public broadcasting continue for all of our citizens. PTFP will provide competitive grants to encourage the development of innovative, replicable applications of digital broadcasting capability in the public broadcasting environment, and the program will assure service to rural, disadvantaged, and other underserved communities. Both public television and radio stations will be eligible to participate in a merit-based competition not only for experiments but for basic conversion also. Grantees will be required to share the results of their projects with the public broadcasting system. Public stations will be able to learn from these model projects as they convert to digital transmission. Examples of projects include but are not limited to installation of basic digital transmission capacity, testing of new and prototype digital equipment, new applications of digital broadcast technologies, experimentation with interactive, multimedia, and multicast capabilities of digital broadcast technology, experimentation with more efficient and economical configurations and procedures, and creative strategies for overcoming barriers to coverage and service. In addition, PTFP will continue its traditional services to stations as well as assisting stations during the period that requires dual analog and digital transmissions.

PTFP will take special measures to assure that the full potential of the new digital technology is used to provide the most economical means possible of providing public broadcasting services. Special consideration will be given to stations broadcasting in under served markets, especially those in rural, remote or disadvantaged communities.

This Presidential initiative is needed to ensure that the significant federal investment in public broadcasting is preserved and that the public have continual access to the educational and cultural programs that air on public broadcasting.

**Explanation and Justification**

The PTFP has been successful in providing facilities that have given millions of Americans access to the educational and cultural programming of public broadcasting. NTIA and its predecessor agencies have assisted noncommercial entities throughout the United States and its territories to acquire the necessary hardware to produce and broadcast public television and radio programs. NTIA also supports the delivery of instructional and educational services by a broad array of community agencies. Approximately $500 million in Federal funds have been invested in the public broadcasting component of the program. Local communities have provided upward of another $500 million to match the Federal grants.

Public broadcasting stations will be undertaking an enormous new financial burden as they transition to the digital format. The Public Television Digital Advisory Committee's report to OMB estimated that $1.7 billion will be needed to convert public television facilities alone. The conversion will place an enormous strain on the already precarious budgets of many of the public broadcasting stations. Assistance is needed during this transition period. For almost half the public television licensees, the cost of conversion to digital is projected to exceed their annual revenues. If stations are forced to convert without assistance, many stations will be forced to go off the air or reduce hours of operation, programming quality, and diversity.

Strategic Intent

Advancing the public interest in telecommunications, mass media, and information is one of NTIA's strategic goals. This initiative fulfills a Congressional mandate that all television stations in the United States convert to digital broadcast technologies and that the current analog frequencies used by conventional television stations be returned for Government auction in 2003. These spectrum auctions are a key element of the Balanced Budget Act of 1997.

NTIA's Strategic Plan also includes the goal of promoting the availability and sources of advanced telecommunications and information services. Digital broadcasting has the potential of bringing a truly vast array of new communications services into the home. For example, digital television (DTV) provides a natural communications route for the transmission of data and interactive information services. Also, DTV's multicasting potential permits diverse services to be delivered to the home as well as schools and other public service institutions simultaneously. Digital broadcasting therefore stands to assume a central place in the evolution of the National Information Infrastructure. NTIA funding for public broadcasting's demonstration of the applications of digital technologies represents a significant step in the achievement of this strategic goal.

Operating Objectives

PTFP's digital conversion funds will assist public broadcasters as they transition from analog to digital broadcasting. NTIA will promote core digital transmission capabilities through a merit- and need-based allocation of funds for base equipment. With the $14 million proposed by this initiative, PTFP will assist approximately 26 stations with the purchase of base transmission equipment. PTFP will also fund projects that demonstrate innovative uses of digital technology. The demonstration funds will be awarded to stations or public telecommunications systems that demonstrate urgent equipment needs or encourage efficiencies in the public broadcasting system. Based on last year's experience, the majority of all equipment requests before the program will be digitally related. The total funding available through PTFP will allow approximately 35 stations in total to transition to digital.

**Measures of Performance**

| | | FY 1999 | FY 2000 |
|---|---|---|---|
| Outputs: | | (under base) | |
| 1. | Number of model projects to demonstrate innovative uses of digital technology (awards) | 2 | 3 |
| 2. | Number of projects that encourage efficiency in the public television system (awards) | 2 | 3 |
| 3. | Digital conversion of stations that demonstrate economic hardship (awards) | | 20 |
| Outcomes: | | | |
| 1. | Universal public television service will continue in rural and disadvantaged communities as a result of these grants. (Cumulative population covered by NTIA conversion grants) | | 10 million |

2. Innovative uses of digital technology will increase noncommercial services delivered by public television stations to public and private schools in model communities.

3. Efficiencies and consolidations supported by these grants will result in reduced operating costs, thereby strengthening the ability of the target stations to provide public television services to their communities.

4. Public television stations will be able to convert to digital service at the same time as the commercial stations in their market.

5. No citizen will lose public television or radio service as a result of the Federally mandated digital transition.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Public Telecommunications Facilities, Planning and Construction
Program Change: Public Telecommunications Facilities, Planning and Construction

| Personnel Title: | | Grade | Number | 1999 Annual Salary | Total Salaries |
|---|---|---|---|---|---|
| Digital Broadcasting Specialist | | 15 | 2 | 80,658 | 161,316 |
| Digital Broadcasting Specialist | | 14 | 2 | 68,570 | 137,140 |
| Digital Broadcasting Specialist | | 13 | 2 | 58,027 | 116,054 |
| Communications Program Specialist | | 12 | 1 | 48,796 | 48,796 |
| Computer Specialist | | 11 | 1 | 40,714 | 40,714 |
| Grants Specialist | | 9 | 2 | 33,650 | 67,300 |
| Grants Assistant | | 6 | 1 | 24,574 | 24,574 |
| Subtotal | | | 11 | | 595,894 |
| Less lapse | 25.0% | | (3) | | (148,974) |
| Total full-time permanent | | | 8 | | 446,921 |
| 2000 Pay Adjustment | 4.4% | | | | 19,665 |
| Total | | | | | 466,585 |

Personnel Data

| | |
|---|---|
| Full-Time Equivalent Employment: | |
| Full-time permanent | 8 |
| Other than full-time permanent | 0 |
| Total | 8 |
| Authorized Positions: | |
| Full-time permanent | 11 |
| Other than full-time permanent | 0 |
| Total | 11 |

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Public Telecommunications Facilities, Planning and Construction
Program change: Public Telecommunications Facilities, Planning and Construction

| Object Class | | 2000 Increase |
|---|---|---|
| 11 | Personnel compensation | |
| 11.1 | Full-time permanent | 466 |
| 11.3 | Other than full-time permanent | |
| 11.5 | Other personnel compensation | |
| **11.9** | **Total personnel compensation** | 466 |
| 12.1 | Civilian personnel Benefits | 96 |
| 21 | Travel and transportation of persons | 67 |
| 22 | Transportation of things | 3 |
| 23.1 | Rental payments to GSA | 90 |
| 23.2 | Rental payments to others | 25 |
| 23.3 | Communications, utilities and misc charges | 28 |
| 24 | Printing and reproduction | 22 |
| 25.1 | Consulting Services | 250 |
| 25.2 | Other services | 262 |
| 25.3 | Purchase of goods and services from Gov't accounts | 282 |
| 25.7 | Operation and maintenance of equipment | 18 |
| 26 | Supplies and materials | 16 |
| 31 | Equipment | 75 |
| 41 | Grants | 12,300 |
| **99** | **Total obligations** | 14,000 |

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) over 2000 Base |
|---|---|---|---|---|---|
| **Object Class:** | | | | | |
| 11 Personnel compensation | | | | | |
| 11.1 Full-time permanent | 886 | 920 | 960 | 1,426 | 466 |
| 11.3 Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| 11.5 Other personnel compensation | 33 | 25 | 25 | 25 | 0 |
| 11.9 Total personnel compensation | 919 | 945 | 985 | 1,451 | 466 |
| 12.1 Civilian personnel benefits | 178 | 190 | 192 | 288 | 96 |
| 13.1 Unemployment compensation | 1 | 0 | 0 | 0 | 0 |
| 21 Travel and transportation of persons | 39 | 52 | 55 | 122 | 67 |
| 22 Transportation of things | 3 | 2 | 2 | 5 | 3 |
| 23.1 Rental payments to GSA | 133 | 85 | 85 | 175 | 90 |
| 23.2 Rental payments to Others | 0 | 0 | 0 | 25 | 25 |
| 23.3 Commun., util., misc. charges | 14 | 0 | 2 | 30 | 28 |
| 24 Printing and reproduction | 12 | 21 | 22 | 44 | 22 |
| 25.1 Consulting Services | 12 | 22 | 22 | 272 | 250 |
| 25.2 Other services | 129 | 209 | 209 | 471 | 262 |
| 25.3 Purchase of goods and services from Gov't accounts | 357 | 428 | 261 | 543 | 282 |
| 25.7 Operation and maintenance of equipment | 1 | 3 | 3 | 21 | 18 |
| 26 Supplies and materials | 15 | 10 | 10 | 26 | 16 |
| 31 Equipment | 10 | 7 | 7 | 82 | 75 |
| 41 Grants, subsidies and contributions | 19,944 | 21,171 | 19,200 | 31,500 | 12,300 |
| **99 TOTAL OBLIGATIONS** | 21,767 | 23,145 | 21,055 | 35,055 | 14,000 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) over 2000 Base |
|---|---|---|---|---|---|
| **Personnel Data:** | | | | | |
| Full-Time equivalent Employment: | | | | | |
| Full-time permanent | 12 | 13 | 13 | 21 | 8 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 12 | 13 | 13 | 21 | 8 |
| Authorized Positions: | | | | | |
| Full-time permanent | 12 | 13 | 13 | 24 | 11 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 12 | 13 | 13 | 24 | 11 |
| **TOTAL:** | | | | | |
| Full-time equivalent Employment | 12 | 13 | 13 | 21 | 8 |
| Authorized Positions | 12 | 13 | 13 | 24 | 11 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | Adjustment to Base | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) |
|---|---|---|---|---|
| 11 Personnel compensation | | | | |
| 11.1 Full-time permanent | | | | |
| Executive level | | | | |
| Senior executive service | 5 | 128 | 128 | |
| General schedule | 35 | 832 | 1,298 | 466 |
| Consultants & experts | | | | |
| Subtotal | 40 | 960 | 1,426 | 466 |
| 11.3 Other than full-time permanent | | | | |
| General schedule | | | 0 | |
| Consultants & Experts | | | | |
| Subtotal | | 0 | 0 | |
| 11.5 Other personnel compensation | | | | |
| Overtime | | 0 | | |
| Cash awards | | 25 | 25 | |
| Subtotal | | 25 | 25 | |
| 11.9 Total personnel compensation | 40 | 985 | 1,451 | 466 |
| 12.1 Civilian personnel benefits | | | | |
| Civil service retirement | 10 | 46 | 46 | |
| Federal employees' retirement | (5) | 54 | 92 | 38 |
| Thrift savings plan | (2) | 9 | 17 | 8 |
| Federal Insurance Contribution Act | (3) | 29 | 47 | 18 |
| Health insurance | 2 | 39 | 64 | 25 |
| Life insurance | | 3 | 4 | 1 |
| Medicare | | 12 | 18 | 6 |
| Employees' compensation fund | | 0 | 0 | |
| Other | | 0 | 0 | |
| Subtotal | 2 | 192 | 288 | 96 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | Adjustment to Base | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) |
|---|---|---|---|---|
| 21 Travel and transportation of persons | | | | |
| Common carrier | | 27 | 57 | 30 |
| Per diem/actual | 3 | 28 | 60 | 32 |
| Other | | 0 | 5 | 5 |
| Subtotal | 3 | 55 | 122 | 67 |
| 22 Transportation of things | | 2 | 5 | 3 |
| Subtotal | | 2 | 5 | 3 |
| 23.1 Rental payments to GSA | | 85 | 175 | 90 |
| Subtotal | | 85 | 175 | 90 |
| 23.2 Rental payments to others | | 0 | 25 | 25 |
| Subtotal | | 0 | 25 | 25 |
| 23.3 Communications, utilities and miscellaneous charges | | | | |
| Rental of ADP equipment | | 0 | 1 | 1 |
| Rental of office copying equipment | | 0 | 1 | 1 |
| Other equipment rental | | 0 | 0 | |
| Federal telecommunications system | 1 | 1 | 11 | 10 |
| Other telecommunications services | | 0 | 8 | 8 |
| Postal Service by USPS | 1 | 1 | 9 | 8 |
| Other | | 0 | 0 | |
| Subtotal | 2 | 2 | 30 | 28 |
| 24 Printing and reproduction | 1 | 22 | 44 | 22 |
| Subtotal | 1 | 22 | 44 | 22 |
| 25.1 Consulting Services | | | | |
| Management & professional support services | | 22 | 272 | 250 |
| Studies, analyses & evaluation | | 0 | 0 | |
| Subtotal | | 22 | 272 | 250 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| Object Class | Adjustment to Base | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) |
|---|---|---|---|---|
| 25.2 Other Services | | | | |
| Contractual Services | | 209 | 436 | 227 |
| Training | | 0 | 35 | 35 |
| Subtotal | | 209 | 471 | 262 |
| 25.3 Purchase of goods and services from other Gov't agencies | | | | |
| Training - Office of Personnel Management | | 0 | 5 | 5 |
| Economic Development Administration | | 25 | 45 | 20 |
| National Institute of Standards and Tech. - Acctg Services | | 20 | 45 | 25 |
| National Archives and Records Administration | 3 | 3 | 3 | |
| Maintenance of equipment | | 0 | 4 | 4 |
| GSA reimbursable services | | 0 | 0 | |
| Payments to Working Capital Fund | 4 | 213 | 441 | 228 |
| Subtotal | 7 | 261 | 543 | 282 |
| 25.7 Operation and maintenance of equipment | | | | |
| Software and hardware maintenance | | 3 | 21 | 18 |
| Subtotal | | 3 | 21 | 18 |
| 26 Supplies and materials | | | | |
| Office supplies | | 5 | 9 | 4 |
| ADP supplies | | 5 | 17 | 12 |
| Subtotal | | 10 | 26 | 16 |
| 31 Equipment | | | | |
| Office machines and equipment | | 0 | 15 | 15 |
| ADP hardware | | 3 | 48 | 45 |
| ADP software | | 4 | 19 | 15 |
| Subtotal | | 7 | 82 | 75 |
| 41 Grants, subsidies and contributions | | 19,200 | 31,500 | 12,300 |
| **99 TOTAL OBLIGATIONS** | 55 | 21,055 | 35,055 | 14,000 |

/1 The data contained in MAX is a combination of this appropriation and the Endowment for Children's Educational Television (13X0527).

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
APPROPRIATIONS LANGUAGE AND CODE CITATIONS:

For grants and activities authorized by section 391 and 392 of the Communications Act of 1934, as amended, to become available on October 1 of the fiscal year specified and remain available until expended as authorized by section 391 of the Act, as amended: *$35,055,000 in fiscal year 2000; $110,000,000 is fiscal year 2001; $100,000,000 in fiscal year 2002; and $89,000,000 in fiscal year 2003*. *Provided*, That notwithstanding the provisions of section 391 of the Act, the prior year unobligated balances may be made available for grants for projects for which applications have been submitted and approved during any fiscal year: *Provided further*, That these funds shall be used principally for grants to support acquisition of core digital transmission capabilities to ensure public broadcasters' transition to digital broadcasting by 2003, as well as for necessary equipment and facilities to maintain public television and radio service.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
ADVISORY AND ASSISTANCE SERVICES
(Dollar amounts in thousands)

| | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|
| Management & Professional Support Services | $12 | $22 | $272 |
| Studies, Analysis & Evaluations | 0 | 0 | 0 |
| Engineering & Technical Services | 0 | 0 | 0 |
| Total | $ 12 | $22 | $272 |

Management & Professional Support Services: The Public Telecommunications Facilities, Planning and Construction Program utilizes consultants to review and evaluate grant applications. In FY 2000, consultants will be used to assist broadcasting stations during the nationwide transition to digital broadcasting.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
PERIODICALS, PAMPHLETS AND AUDIOVISUAL PRODUCTS
(Dollar amounts in thousands)

| | 1997 Actual | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|---|
| Periodicals | $ 0 | $ 0 | $ 0 | $ 0 |
| Pamphlets | 25 | 5 | 15 | 30 |
| Audiovisual products | 0 | 0 | 0 | 0 |
| Total | $ 25 | $ 5 | $ 15 | $ 30 |

The Public Telecommunications Facilities, Planning and Construction program utilizes pamphlets to provide grant application guidelines and reporting requirements.

Department of Commerce
National Telecommunications and Information Administration
Public Telecommunications Facilities, Planning and Construction
AVERAGE GRADE AND SALARIES

| | 1998 Actual | 1999 Estimate | 2000 Estimate |
|---|---|---|---|
| Direct: | | | |
| Average ES Salary | $122,824 | $127,246 | $132,844 |
| Average GS Grade | 13.5 | 13.4 | 12.7 |
| Average GS Salary | $ 63,869 | $ 65,534 | $62,753 |

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar amounts in thousands)

| Page No. | | Positions | Budget Authority | FTE | Direct Obligations |
|---|---|---|---|---|---|
| | Appropriation Available, FY 1999 | 0 | (1,175) | 0 | (1,175) |
| | plus: 2000 Adjustments to base | 0 | 1,175 | 0 | 1,175 |
| | 2000 base request | 0 | 0 | 0 | 0 |
| | less: 2000 Program changes | 0 | 0 | 0 | 0 |
| | 2000 Estimate | 0 | 0 | 0 | 0 |

| | Comparison by activity: | | 1998 Actual/1 | | 1999 Currently Available/1 | | 2000 Base/1 | | 2000 Estimate/1 | | Increase/ (Decrease) Over 2000 Base | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount | Personnel | Amount |
| NTIA- | Endowment for Children's | Pos./BA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Educational Television | FTE/Obl. | 0 | 7 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Adjustments to obligations:** | | | | | | | | | | | |
| | Recoveries | | | | | | | | | | | |
| | Unobligated balance, start of year | | | (1,200) | | (1,193) | | | | | | |
| | Unobligated balance transferred | | | | | | | | | | | |
| | Unobligated balance, end of year | | | 1,193 | | | | | | | | |
| | Unobligated balance, expiring | | | | | | | | | | | |
| | Financing from transfers: | | | | | | | | | | | |
| | Transfers from other accounts (-) | | | | | | | | | | | |
| | Transfers to other accounts (+) | | | | | | | | | | | |
| | | | | 0 | | (1,175)/2 | | 0 | | 0 | | 0 |

/1 The data contained in MAX for this appropriation is under the Public Telecommunications Facilitities, Planning and Construction (13X0551) account.
/2 Public Law 105-277 rescinded $1,175,000 from this appropriation.

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
SUMMARY OF FINANCING
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) Over 2000 Base |
|---|---|---|---|---|---|
| **Total Obligations** | 7 | 18 | 0 | 0 | 0 |
| Offsetting collections from: | | | | | |
| Federal funds | | | | | |
| Non-Federal sources | | | | | |
| Recoveries | | | | | |
| Unobligated balance, start of year | (1,200) | (1,193) | | | |
| Unobligated balance transferred | | | | | |
| Unobligated balance, end of year | 1,193 | | | | |
| Unobligated balance lapsing | | | | | |
| **Budget Authority** | 0 | (1,175) | 0 | 0 | 0 |
| Financing: | | | | | |
| Transfer from other accounts (-) | | | | | |
| Transfer to other accounts (+) | | | | | |
| **Appropriation** | 0 | (1,175)/2 | 0 | 0 | 0 |

/1 The data contained in MAX for this appropriation is under the Public Telecommunications Facilities, Planning and Construction (13X0551) account.
/2 Public Law 105-277 rescinded $1,175,000 from this appropriation.

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
ADJUSTMENTS TO BASE
(Dollar amounts in thousands)

| | FTE | Amount |
|---|---|---|
| **Other Changes:** | | |
| 1999 Cancellation of Rescission | 0 | 1,175 |
| **Total, adjustments to base** | **0** | **1,175** |

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
Justification of Adjustments to Base
(Dollar amounts in thousands)

| | FTE | Amount |
|---|---|---|
| **Other Changes:** | | |
| 1999 Cancellation of Rescission | 0 | 1,175 |
| Pursuant to Public Law 105-277, $1,175,000 was rescinded. | | |
| **Total, adjustments to base** | **0** | **1,175** |

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) over 2000 Base |
|---|---|---|---|---|---|
| **Object Class:** | | | | | |
| 11 Personnel compensation | | | | | |
| 11.1 Full-time permanent | 0 | 0 | 0 | 0 | 0 |
| 11.3 Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| 11.5 Other personnel compensation | 0 | 0 | 0 | 0 | 0 |
| 11.9 Total personnel compensation | 0 | 0 | 0 | 0 | 0 |
| 12.1 Civilian personnel benefits | 0 | 0 | 0 | 0 | 0 |
| 13.1 Unemployment compensation | 0 | 0 | 0 | 0 | 0 |
| 21 Travel and transportation of persons | 0 | 0 | 0 | 0 | 0 |
| 22 Transportation of things | 0 | 0 | 0 | 0 | 0 |
| 23.1 Rental payments to GSA | 0 | 0 | 0 | 0 | 0 |
| 23.2 Rental payments to Others | 0 | 0 | 0 | 0 | 0 |
| 23.3 Commun., util., misc. charges | 0 | 0 | 0 | 0 | 0 |
| 24 Printing and reproduction | 0 | 0 | 0 | 0 | 0 |
| 25.1 Consulting Services | 0 | 0 | 0 | 0 | 0 |
| 25.2 Other services | 0 | 0 | 0 | 0 | 0 |
| 25.3 Purchase of goods and services from Gov't accounts | 7 | 18 | 0 | 0 | 0 |
| 25.7 Operation and maintenance of equipment | 0 | 0 | 0 | 0 | 0 |
| 26 Supplies and materials | 0 | 0 | 0 | 0 | 0 |
| 31 Equipment | 0 | 0 | 0 | 0 | 0 |
| 41 Grants, subsidies and contributions | 0 | 0 | 0 | 0 | 0 |
| **99 TOTAL OBLIGATIONS** | 7 | 18 | 0 | 0 | 0 |

/1 The data contained in MAX for this appropriation is under the Public Telecommunications Facilities, Planning and Construction (13X0551) account.

Department of Commerce
National Telecommunications and Information Administration
Endowment for Children's Educational Television
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

| | 1998 Actual/1 | 1999 Currently Available/1 | 2000 Base/1 | 2000 Estimate/1 | Increase/ (Decrease) over 2000 Base |
|---|---|---|---|---|---|
| **Personnel Data:** | | | | | |
| Full-Time equivalent Employment: | | | | | |
| Full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 0 | 0 | 0 | 0 | 0 |
| Authorized Positions: | | | | | |
| Full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Other than full-time permanent | 0 | 0 | 0 | 0 | 0 |
| Total: | 0 | 0 | 0 | 0 | 0 |
| **TOTAL:** | | | | | |
| Full-time equivalent Employment | 0 | 0 | 0 | 0 | 0 |
| Authorized Positions | 0 | 0 | 0 | 0 | 0 |

/1 The data contained in MAX for this appropriation is under the Public Telecommunications Facilities, Planning and Construction (13X0551) account.